NORTH CAROLINA MEDICAL JOURNAL

OWNED AND PUBLISHED BY
THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

VOLUME 5 MAY, 1944 NUMBER 5

PRESIDENT'S ADDRESS
A CHALLENGE TO THE DOCTORS OF NORTH CAROLINA

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MORGANTON

In medicine today two antagonistic forces are struggling for control. On the one hand is the desire of the individual doctor to live his own life and be responsible for his own mental, material and professional development; while on the other hand is the trend to have people subjected entirely to mass activity and to herd or group ideas. The battle is between individuality and regimentation. This country of ours has grown great through private initiative and we are not likely to surrender to regimentation without a bitter struggle.

The average doctor is a confirmed individualist, and there is no sphere of human activity where such an attribute is more important than in medicine. With the essentials of professional training, equipment and wisdom, the physician should be left free to exercise his own judgment in his battle against disease and death.

Regimentation destroys in the average person all chances of growth and in the ambitious individual all hope of success. It also destroys that desirable efficiency which appears when an individual reacts to the normal incentives to success and happiness —that personal realization of being of some importance in community life and even in world affairs. Progress in human affairs depends fundamentally upon the opportunity for individual invention, personal ingenuity and private initiative. There are some activities which the individual cannot properly conduct for himself, and here the state should undertake to act for its citizens; except in these spheres everyone should be responsible to and for himself so far as possible, and thus human dignity and personal self-respect will be preserved.

This Society is familiar with the provisions of the Wagner-Murray-Dingell Bill, which was introduced in Congress last June. In July, the National Physicians' Committee, through the largest opinion research group in this country, Opinion Research Corporation of Princeton, New Jersey, polled a representative cross-section of the population to find out how the ordinary citizen feels about the federalization of medicine and about prepayment plans for medical and hospital care. This comprehensive study has just been published, and an editorial digest appeared in *The Journal of the American Medical Association* for March 11, 1944, and in the April issue of the NORTH CAROLINA MEDICAL JOURNAL. This survey shows conclusively that a majority of the people of this country want free choice of doctors and hospitals when they or members of their families are ill, and that they do not believe they will receive the most efficient service under restricted control by the national government. This survey further shows that those who participate in prepayment plans heartily endorse them and that doctors in communities where such plans are in force approve of them.

To refer again to the Wagner-Murray-Dingell Bill, I have received from high authority in Washington, through personal interviews, the opinion that this bill will not

Read before the First General Session, Medical Society of the State of North Carolina, Pinehurst, May 2, 1944.

likely receive favorable action in the present Congress. However, I think there can be little doubt but that threats of this character will confront us again and again if we do not meet adequately the medical and hospital needs of our people. In my opinion, "eternal vigilance" is the price of medical freedom no less than of political freedom.

It would be wise for us here in North Carolina to develop ways and means to combat the peril of socialized medicine; for prevention of disaster in our social and political structure is no less important than prevention of disease. We are fortunate in having a Governor who is taking the lead in this movement to see "that no person in North Carolina shall lack adequate hospital care or medical treatment by reason of poverty or low income." Governor Broughton has made three important and far reaching recommendations to the Board of Trustees of the University of North Carolina, which they promptly and unanimously endorsed. As the first step toward carrying out these proposals the Governor has appointed a commission to study and survey all aspects of the problem You will be glad to know that this commission includes fourteen doctors. In order to have a balanced survey, the Governor has also appointed representatives of labor, of industry, of agriculture, and of the Negro race, and other persons with outstanding qualifications of leadership.

Although every member of the Society has received a copy of the Governor's recommendations, for the sake of emphasis and to refresh your memory I shall read them here. They are as follows:

"1. That the present two-year medical school at the university be enlarged and increased so as to provide a full four-year course. Two other medical schools in the State—Duke University and the Bowman Gray School of Medicine of Wake Forest College at Winston-Salem—are already on a four-year basis and doing magnificent work; but it is obvious from a study of the figures that these schools do not begin to supply and can never supply the full requirements for physicians to serve adequately the civilian population of North Carolina.

"2. That an adequate hospital be erected at the University of North Carolina at Chapel Hill, with a capacity of not less than six-hundred, and preferably one-thousand beds, which in conjunction with the Medical School and the hospital facilities already available at the University shall constitute a state hospital center; that such hospital shall be built by State funds, supplemented by such Federal, private or foundations funds as may be available, and shall be open to patients from all sections of the state, with provisions for free hospital and medical service to all such patients as may be unable to pay for same; that the various counties of the state be encouraged and set up appropriations to provide a substantial portion of the cost of patients who may be sent to such hospitals from such county, such funds to be supplemented by funds that may be available from the Duke Foundation or other foundations now in existence or hereafter created for such purpose.

"3. That since it is obvious that one hospital center could not begin to serve the needs of the state under this sort of program, that other, though smaller, hospitals to serve as local medical centers be established in strategic regions of the state for the hospitalization of those in need of medical care without the means to provide for that care. It is possible that some of the Army or Navy hospitals that have been built in the state in connection with military and naval installations, or otherwise, may be available in connection with this program.

"In the event such plan as herein broadly suggested without specific details, should be approved at least in principle by this Board of Trustees, it would be my purpose to appoint a commission to be composed of outstanding members of the medical profession and of business, agricultural and labor groups, to make a comprehensive study of the whole subject, including studies and possible visits to other sections in which achievements along this line may have been made, and to submit recommendations to the next session of the General Assembly, the report of such commission to be filed and made public at least thirty days before the convening of the next session.

"The ultimate purpose of this program should be that no person in North Carolina shall lack adequate hospital care or medical treatment by reason of poverty or low income."

It seems to me that in the Governor's proposals we have a plan which might be effect-

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ive in challenging the threat of regimentation and federalization of medicine, and which might meet the need for proper medical and hospital services to the low-income group and the indigent: A four year medical school and hospital at the University with an allied extension of medical services throughout the state. There is a great need in North Carolina for medical personnel of all types—doctors, nurses, public health officers, sanitarians, and dentists. All of these can be supplied in increasing numbers by a four year medical school at the University.

At the present time, according to the latest figures available, there are 1,613 practicing physicians in North Carolina. If we add to that number the 654 physicians from this state who are in the armed services we have a total of 2,267 or, on the basis of the population of the state in 1940, a physician-patient ratio of 1 to 1,575. The national average is 1 doctor to approximately 800 population, and it is generally conceded that a ratio greater than 1 to 1,000 is fraught with danger to the health of the population at large.

It has been estimated by Dean Davison, of Duke University Medical School, that the state needs approximately 1,600 additional doctors to serve the needs of the population adequately. For the five years previous to the outbreak of the war the number of new physicians licensed each year in the state only a little more than made up for the losses from the profession by death, retirement, and moving away. It has been estimated that we need approximately 100 new doctors each year to compensate for the losses in the profession. The number of graduates of the two privately endowed schools who have received licenses to practice medicine in North Carolina has averaged 35 annually for the past five years—15 from Duke and 20 from Wake Forest. Undoubtedly this number will be increased now that the Wake Forest Medical School has become a four-year school.

Certain it is that we can have no successful health program without a substantial increase in medical personnel. That is not to say that the Bowman Gray and Duke University Medical Schools are failing in any way to meet their obligations in the state. They are contributing substantially year by year to the medical needs of the state, but their capacity is not sufficient to supply the personnel necessary for the desired expansion of medical services in North Carolina. There is little hope of placing doctors in the small villages and rural areas now so greatly in need of medical care unless we can offer a complete medical education to boys and girls from these rural districts. They are in every respect our best material for such a purpose, and material which has been too long neglected. I see no hope of correcting this situation without a four year medical school at the University.

In close cooperation with the School of Public Health already established and with the possible development of institutes of tropical diseases, mental health, and malignant diseases, such a center should contribute a great deal to our knowledge through research.

In the extension of hospital facilities no conflict with those already existing is contemplated, but rather the full use of hospitals of all kinds, public and private, with enlargement where needed, and the establishment of new hospitals only in those areas where none exist and where there are no local means of establishing and maintaining them.

Another development that will meet a tremendous need is an ambulance system to transport the sick to a hospital. This system may be handled by private business or undertaking companies already established. The sick patients from areas not now receiving adequate medical service must get to the hospitals and to the doctors. The time of the doctor should not be wasted in travel, and there are numerous diagnostic and treatment facilities which are available only in hospitals.

Another weapon which will help combat the threat of federalized medicine is the maximum utilization of voluntary prepayment hospital insurance plans, generally known as the Blue Cross plans. There should be a more widespread understanding and use of these plans, which have been fostered and promoted by this Society for many years. Such plans offer to people of the low-income group an opportunity to budget for their illness on a prepayment basis and afford them a chance to secure first-class medical and hospital care. Hospital insurance will also help materially in financing the University hospital center and in the extension of hospital facilities throughout the state by pay-

ing the hospital bills of the low-income group. It is possible that through the cooperation of the County Commissioners and the County Welfare Boards the indigent may ultimately be included in these plans, so that a prepayment plan for medical and hospital expenses will be made available for every individual and family group. Prepayment insurance on a voluntary basis, providing for the contingencies of illness, is a sound principle and should receive the support and cooperation of the medical profession. With the guidance of the profession it would eliminate the need for a federal program in the field of medicine.

Let it be said here and now that I would not advocate socialized medicine or state medicine in any complete form, nor do I believe this Society will ever submit to state control or federalization of medicine. If the medical profession and this Society are not allowed to guide and control this movement, I am definitely and totally opposed to it.

I know there are some who are afraid to make changes and who may see in the Governor's proposals possible danger. Even though these plans for cooperative action at times may run contrary to beliefs and practices we have long cherished, we must meet the needs which confront us with high courage and firm faith.

Nearly thirty years ago, John Erskine wrote a book called THE MORAL OBLIGATION TO BE INTELLIGENT. Such might well be the motto of this Society as it faces the problems in our state at this critical time. We should show strength through preparedness and the adoption of a positive policy rather than appeasement or a "do nothing" attitude. It is certain that we can no longer stand still or rest upon our past achievements. The answer to federalization of medicine in North Carolina, as in other states, is to meet the demands for extension of medical services on a state level under the guidance and with the wholehearted cooperation of the medical profession.

I think the need for this cooperation was well expressed in President Cobb's address to our Society last year[1], and he has given me permission to quote from it as follows:

"For any expansion of medical services to be effective and to benefit the people materially, it must have the understanding, support, and active participation of the medical profession.

"Our best medical thought must aid in the development of any wise and sound social security plan. Our medical leaders must cooperate with and guide these changes and developments in so far as they pertain to medical service. To assume an indifferent and negative attitude will not only affect our profession adversely; it will result in the people's receiving an inferior type of service and possibly on a purely political basis . . . We must see to it that the independence and freedom of medicine, free choice of physicians and hospitals, free initiative and free enterprise, which are the basis of scientific advancement, remain an integral part of our American way of life. . .

". . . We should not be indifferent to public interest in any plans for a better medical service. It is our duty not to antagonize but to show and lead the way.

". . . Such cooperation should make possible any wise and necessary expansion of medical service and at the same time maintain the high standards of efficiency to which American medicine has risen."

We must not allow the destruction of our medical achievements, but must find the way and the wisdom to preserve them. We should be able to develop plans on a state level which will save our state and nation from the disaster of federalized medicine, and which may well serve as a model for other states. Thus, individual and state rights will be preserved and the destruction of our profession and of the American way of life will be prevented.

The medical profession and the leaders in medical education in North Carolina have the opportunity and the duty to develop a health and medical practice program best suited to the needs of our people. It is my earnest hope that we, as individual doctors and as members of this Society, in cooperation with the University, will undertake this needful and worthy task.

1. Cobb, Donnell B.: The Immediate Responsibility of Organized Medicine, North Carolina M. J. 4:197-203 (June) 1943.

The Need for Equanimity. We physicians have little excuse for uncontrolled or irritable behavior. We who are well must be understanding and patient, even when we are tired and worn out from overwork and lack of rest and sleep. Our patients have a right to expect us to be calm and judicious. Were one of us ever to act peevishly or childishly, he would promptly lose his usefulness as a physician. —Alvarez, Walter C.: Nervousness, Indigestion, and Pain, New York, Paul B. Hoeber, Inc., 1943, p. 154.

INTERSTITIAL NEPHRITIS: A CASE REPORT

ELIAS S. FAISON, M.D.

CHARLOTTE

A white male, aged 19, was admitted to the Mercy Hospital in Charlotte on October 5, 1942, with chills, fever and suppression of urine. He stated that up until two days prior to the onset he felt well. At that time he noticed a dull headache, for which he took a laxative. Next he noticed a chilly sensation, followed by fever. At first he paid no attention to his failure to void, but after twenty-four hours had elapsed and he still had no desire he became alarmed. He consulted his family physician, who had him admitted to the hospital and referred him to Dr. Claude Squires.

The past history was non-contributory. The patient stated that he had never had scarlet fever. Upon admission he complained of pain in the back, nausea, and vomiting, in addition to the former complaints.

Physical and ophthalmoscopic examination showed nothing abnormal except an elevation of temperature to 101 F. Two days later the temperature reacher 102 F., but gradually receded until the fifth day, when it became normal and remained so throughout the patient's stay in the hospital. The blood pressure on admission was 110 systolic, 40 diastolic, and subsequent blood pressure readings showed a systolic pressure that varied from 90 to 124 and a diastolic pressure ranging from 40 to 90. The kidneys were not palpable and at no time was there any evidence of edema. A flat plate of the abdomen was negative. Cystoscopic and pyelographic examinations, made three days after admission by Dr. Squires, showed nothing abnormal. A note on the chart, however, stated that the kidneys were unusually large.

Twelve hours after admission 50 cc. of urine were passed, this being the first urine voided in thirty-six hours. Only 506 cc. of urine were excreted during the first seven days, and practically all of this was examined routinely. The reaction in each instance was acid and the specific gravity ranged from 1.007 to 1.016. There was a 2 plus reaction for albumin, and microscopic examination revealed a few pus cells, from 4 to 50 red blood cells per high power field, and an occasional granular cast. The leukocyte count ranged from 8000 to 12,000, with a normal differential. There was a mild hypochromic anemia.

A phenolsulfonphthalein test on October 13 showed no excretion of dye at the end of four hours; on October 20, 12 per cent was excreted in four hours; on October 29, 50 per cent; and on November 4, 53 per cent. The nonprotein nitrogen (table 1) rose to 610 mg. per 100 cc. on October 10 and to 425 mg. on October 15 and 19, and then began to fall.

Treatment consisted of sedation and 10 per cent glucose in normal saline parenterally and by proctoclysis. Because of the complaint of pain in the back, the patient was sent daily to the physiotherapy department, where the light cradle was applied to this area. While there, he went through the usual hydrotherapy procedure—the heat box, the shower, and the massage.

The prognosis in the beginning was extremely dubious, particularly since the headache was severe and nausea and vomiting were most pronounced. With the rising nonprotein nitrogen (table 1) and urea nitrogen (table 2) a convulsion was expected,

Table 1

Nonprotein nitrogen

Date	Milligrams per 100 cc. of blood
Oct. 6	200
Oct. 8	330
Oct. 10	610
Oct. 13	205
Oct. 15	425
Oct. 19	425
Oct. 20	130
Oct. 21	105
Oct. 23	135
Oct. 27	80
Oct. 29	53
Nov. 4	38

Table 2

Miscellaneous tests

Date	Test	Milligrams per 100 cc. of blood
Oct. 8	Creatinine	6.2
	Cholesterol	120
	Andrews Diazo - Positive	
Oct. 9	Urea Nitrogen	185
Oct. 13	Urea Nitrogen	135
	Chlorides	360
	Uric Acid	10.6
	Creatinine	8.1
Oct. 21	Creatinine	2.9
	Urea Nitrogen	65
	Chlorides	635
Oct. 23	Urea Nitrogen	90

Read before the Second General Session, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.

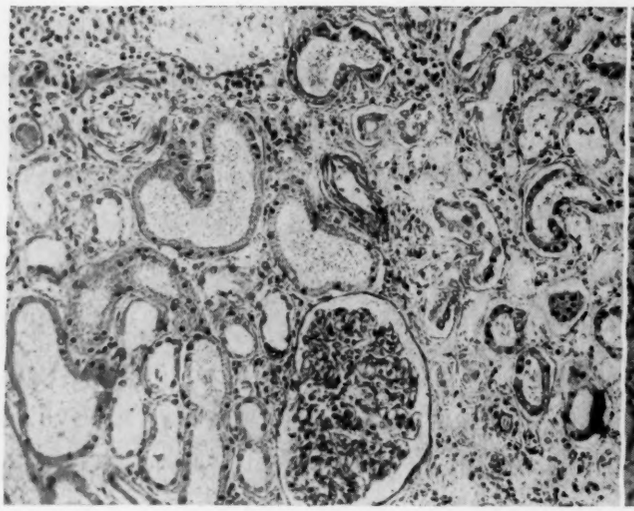

Fig. 1. Serous type of interstitial nephritis, showing separation of tubules by edematous connective tissue containing scattered round cell infiltration. Also noticeable is marked tubular dilatation.

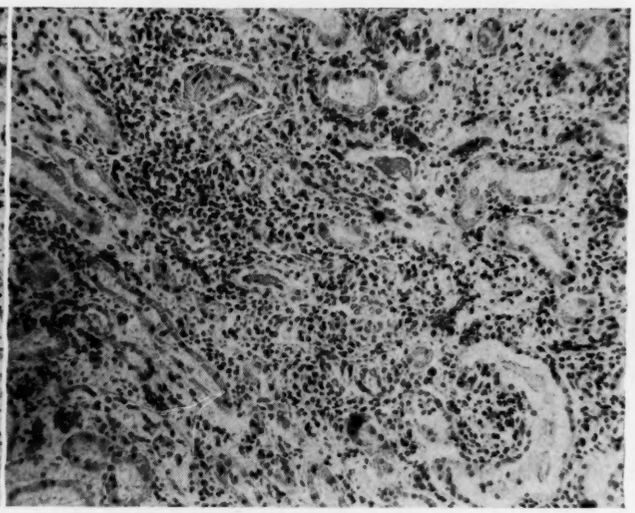

Fig. 2. Cellular type of interstitial nephritis. Note the tubular separation.

but at no time was the cerebration in any degree impaired. On the eighth day after admission the patient showed a decided subjective and objective improvement, although the blood chemistry continued to be quite abnormal. Within a few days, however, the blood chemistry began to show a commensurate amelioration (table 2).

The remaining period of hospitalization was uneventful. The laboratory tests gradually approached normal and remained so until his dismissal on November 15, 1942. A close follow-up of this patient failed to reveal anything abnormal, either on physical examination or in the laboratory studies. After three months he was considered completely well and further observation was discontinued.

Discussion

We have classified this case as one of acute hematogenous interstitial nephritis, although this term is not commonly used in medical literature. Inflammatory infiltration of the kidneys, primarily localized in the interstices, is found in various conditions. Extensive lymphocytic infiltration is found in all cases of severe nephrosclerosis, but the term arteriosclerotic nephritis has long been abandoned, since it became obvious that in this instance the vascular lesions are primary and the lymphocytic infiltration secondary to atrophy of renal tissue and scar formation. Extensive interstitial inflammatory infiltration with lymphocytes and polymorphonuclear leukocytes occurs also in pyelonephritis. In these cases, however, the inflammatory infiltration is irregular in distribution, focal in nature, and associated with an inflammatory lesion of the urinary tract.

Clinical picture

The process described by Kimmelstiel in 1938[1] as acute hematogenous interstitial nephritis is a condition which is clinically characterized by the acute onset of oliguria, usually rapidly developing into anuria, with rising nonprotein nitrogen, creatinine and urea nitrogen in the blood. Any urine which may be passed is usually of a low specific gravity. As a rule, the patient fails to develop hypertension. He may have varying amounts of albumin in the urine and occasionally a few red blood cells and casts, but these findings are usually negligible. The process may lead to fatal uremia.

Autopsy findings

When cases of this type come to autopsy, the kidneys usually show marked enlargement and are of twice or even three times the normal weight. On section, the parenchyma is found to be extremely moist and boggy, and bulges when the capsule is incised. The vascular and glomerular components of the kidney are found to be intact. The most prominent feature is that of marked interstitial edema characterized by separation of the tubules (fig. 1 and 2), with varying degrees of inflammatory infiltration. A more or less marked acute dilatation

1. Kimmelstiel, P.: Acute Hematogenous Interstitial Nephritis, Am. J. Path. 14:737-761 (Nov.) 1938.

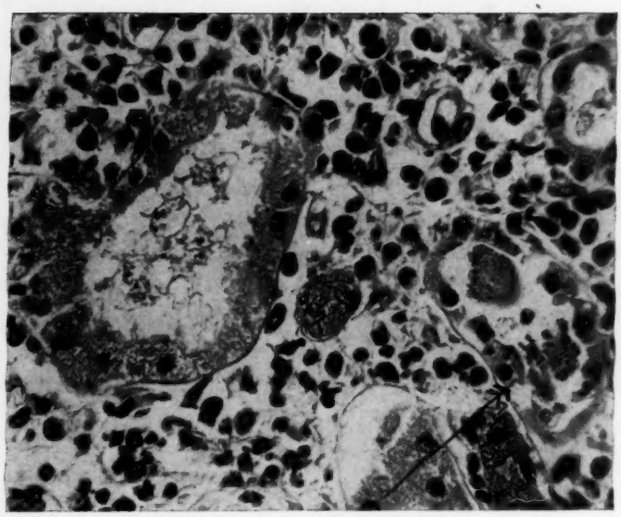

Fig. 3. High power magnification of the cellular type of interstitial nephritis. Note the paucity of polymorphonuclear leukocytes and pleomorphism of small round cells. Also note epithelial degeneration.

of renal tubules (fig. 1) is a frequent, but not a constant finding. Degenerative changes in tubular epithelial cells (fig. 3) are usually noted, but these may vary considerably in amount or may be completely absent.

Etiology

Interstitial nephritis occurs in various conditions. It is most commonly seen in conjunction with acute infectious diseases, particularly scarlet fever, usually five days after the outbreak of the rash. The development of this complication is manifested by oliguria and low specific gravity of the urine, without elevation of blood pressure. In contrast to this picture, glomerulonephritis following the same disease occurs three weeks after the onset of the rash and is characterized by the presence of red blood cells and casts in the urine, and a rising blood pressure. Interstitial nephritis is especially apt to occur in Weil's disease, in yellow fever, in renal suppression following blood transfusions, in cases of severe burns, and also, as has recently been observed, in severe reactions to sulfonamide drugs. This type of reaction is different from that in which the urinary suppression is due to a blockage of the urinary outflow by sulfonamide crystals.

Types of interstitial nephritis

In cases of urinary suppression occurring early in scarlet fever, in Weil's disease, or in yellow fever, the interstitial nephritis is morphologically conspicuous because of the massive cellular infiltration. This finding is not present in cases of interstitial nephritis following severe burns or blood transfusions with incompatible blood, or in the so-called hepatorenal syndrome and other like conditions. In these instances the inflammatory exudate in the interstices of the kidney is more serous (fig. 1) than cellular in type (fig. 2, 3).

Explanation of urinary suppression in cases of interstitial nephritis

Various factors have been held responsible for the urinary suppression occurring in these cases—among them, mechanical obstruction of the renal tubules by hemoglobin casts and a toxic reaction in the tubules. However, it has been learned that this condition may occur in the absence of hemoglobin casts and that the degenerative lesions of the tubular epithelial cells may be negligible. We must therefore conclude that neither of these factors can be held responsible for the urinary suppression.

The common denominator in all these cases is the presence of serous or cellular interstitial inflammatory infiltration. It is unlikely, however, that an increased pressure within the renal parenchyma mechanically causes the urinary suppression, because the intrarenal pressure—that is, the amount of edema—may vary greatly and shows no direct correlation to the severity of the clinical picture. Hydrostatic pressure in these cases is usually adequate, and the concentrating power of the kidney is obviously disturbed, since the specific gravity is not elevated.

As a working hypothesis a hyperergic reaction can be assumed to be the basis of all cases of interstitial nephritis. In infectious diseases which are associated with interstitial nephritis and oliguria, the inflammatory reaction as a rule is not confined to the kidney but is also present in various other parenchymatous organs. Interstitial myocarditis and hepatitis are common findings in such cases. But even in conditions in which interstitial nephritis is not associated with infectious diseases, the presence of an allergic reaction to foreign proteins may be assumed. Blood transfusion reactions, for example, are often associated with other signs of allergy, such as urticaria. In cases of sulfonamide reaction it is now generally agreed that allergy plays a dominant part.

Just how the hyperergic reaction mechanically produces urinary suppression is not known. Various explanations have been offered, but they are all hypothetical in nature.

Summary

1. A case of acute hematogenous interstitial nephritis with recovery is reported.

2. The clinical picture, autopsy findings, and etiology in the different types of interstitial nephritis are discussed.

3. An allergic reaction in the kidneys is proposed as the basis for all cases of interstitial nephritis.

The illustrations for this article were furnished by Dr. Paul Kimmelstiel of the Charlotte Memorial Hospital.

STREPTOCOCCAL DISEASE IN INFANCY AND CHILDHOOD

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WILMINGTON

The manifestations of the invasion of the human organism by the beta hemolytic streptococcus are many and varied. For a long time these manifestations were regarded as unrelated entities, but in recent years they have been drawn together into a disease complex to which the name streptococcosis has been given[1]. It is no longer thought that each of the numerous streptococcal diseases such as scarlet fever, erysipelas and tonsillitis is caused by its own particular variety of the streptococcus; for it has been shown that all of these clinical manifestations can be caused by any one of the strains of the organism which are known to be pathogenic for man. This interrelation of the disease pictures caused by the hemolytic streptococcus has been established since the development of methods for grouping and typing the organisms.

Serologic Aspects

In 1933 the serological grouping of beta hemolytic streptococci was begun by Lancefield[2], and since that time much information regarding the roles of the various serological types in infectious diseases has come to light. Groups A to K, each with its subtypes, have been differentiated. Group A consists of about thirty types that can be identified by the agglutination technique of Griffith[3]. It has been found that in almost all infections caused by beta hemolytic streptococci in the human being the infectious agent belongs to group A. In the series of 1159 strains isolated by Keefer and Rantz[4] 95 per cent fell into group A, and a similar incidence has been reported by workers in other centers[5]. Streptococci of other groups may be real pathogens, however[4,5a,c]. In a recent series of 13 cases of streptococcal septicemia Rantz and Kirby[6] found group B streptococci in 4 cases, group C in 1, and group D in 1 case. Because of the varying responses of these bacteria to sulfonamides, it has been suggested that the chemotherapeutic implications justify typing of the organisms clinically. However, the process is not yet practical for widespread use, and is chiefly carried out experimentally. There has been no correlation between the types of streptococci and their virulence or the disease picture produced. Suffice it to say that group A organisms are almost always the cause of streptococcal disease in children, and that members of the other groups are of little importance to us.

Epidemiologic Aspects

In the study of streptococcal disease the methods of the epidemiologist have brought out several interesting facts. It has been found that each epidemic is caused by a single type of the organism, types 1, 2, 3, 4, 11, 12, 13, 15, 19, 26, and others having been reported[5c,7]. Epidemics of streptococcal diseases are sometimes associated with such virus infections as colds, measles, and influenza. Some epidemics have been traced to a single case. Epidemics may occur in any sea-

Read before the Section on Pediatrics, Medical Society of the State of North Carolina, Raleigh, May 12, 1943.

1. Bearg, P. A., Boisvert, P. L., Darrow, D. C., Powers, G. F., and Trask, J. D.: "Streptococcosis" and "Streptococcic Fever", Am. J. Dis. Child. 62:431 (Aug.) 1941.
2. Lancefield, R. C.: Serological Differentiation of Human and Other Groups of Hemolytic Streptococci, J. Exper. Med. 57:571-595 (April) 1933.
3. Griffith, F.: Serological Classification of Streptococcus Pyogenes, J. Hyg. 34:542-584 (Dec.) 1934.
4. Rantz, L. A. and Keefer, C. S.: Distribution of Hemolytic Streptococci Groups A, B, and C in Human Infections, J. Infect. Dis. 68:128-132 (March-April) 1941.
5. (a) Boisvert, P. L.: Human Hemolytic Streptococci From Diseases of Children, Am. J. Dis. Child. 59:281-286 (Feb.) 1940; (b) Gunnison, J. B., Luxen, M. P., Cummings, J. R., and Marshall, M. S.: Differentiation of Hemolytic Streptococci From Various Sources by Group Precipitin Reaction and by Biochemical Tests, J. Bact. 39:689-708 (June) 1940; (c) Plummer, H.: Serological and Biochemical Study of Hemolytic Streptococci, J. Immunol. 42:91-107 (Sept.) 1941.
6. Rantz, L. A. and Kirby, W. M. M.: Hemolytic Streptococcus Bacteremia, New England J. Med. 227:730-733 (Nov. 12) 1942.
7. (a) Bloomfield, A. L. and Rantz, L. A.: Outbreak of Streptococcic Septic Sore Throat in an Army Camp, J.A.M.A. 121:315-319 (Jan. 30) 1943; (b) Coburn, A. F. and Pauli, R. H.: Interaction of Host and Bacterium in Development of Communicability by Streptococcus Haemolyticus, J. Exper. Med. 73:551-570 (April) 1941.

son, but only in temperate zones. They always occur among children and individuals living or working under crowded conditions. The incubation period is short (less than a week) and the spread is not rapid, the peak of incidence usually occurring about three weeks following the outbreak. The clinical characteristics of the cases in a closed community are generally uniform, and in most epidemics the mortality is low.

In a hospital epidemic reported by Coburn and Pauli[7b] it was considered that two factors combined to produce the epidemic form of the disease—namely, (1) the coexistence of a transmitting host and (2) the ability of the organisms to adapt themselves, so that they could survive in the air and be subcultured on a likely host.

In epidemiologic studies done by Powers, Boisvert and others[1,8] it was discovered that several members in the families of patients with a recognizable streptococcal disease such as scarlet fever would be carrying organisms of the same serological type although with different manifestations, such as erysipelas, otitis media, cervical adenitis, and acute follicular tonsillitis. The following sequence of events in one family was typical: On January 17, James, 9 years old, was feverish and complained of sore throat; four days later he developed erysipelas and was admitted to the hospital. On that day Frank, aged 5, became ill with a sore throat, swollen cervical glands and a paronychia. Shortly afterward the father was confined to bed with a sore throat, and then Jeanne, 2 years old, came down with scarlet fever.

Clinical Aspects

From their studies of streptococcal disease the Yale group have been able to describe the natural history of the disease as it manifests itself variously in infants, children, and adults.

> "During the first three years of life especially, but not exclusively, there are a large number of children who have fever, pharyngitis, nasal discharge, persisting cervical adenitis, catarrhal otitis media, and anemia. They are querulous, miserable-appearing, and anorexic, but their reaction to the infection is not usually stormy. The patients are subacutely ill from four to eight weeks and are not their usual selves for a much longer time. In most of these children hemolytic streptococci may be cultured from the nose and throat, and from pus if there is suppuration of glands or ears. Invasion of the blood stream and metastatic foci sometimes occur. The type of the infection may be described as low-grade and general."

This disease picture is called streptococcal fever, childhood type, as contrasted to the adult type, which is manifested by a more stormy sudden illness, consisting of acute painful pharyngitis or follicular tonsillitis that lasts only a few days, but may be complicated by peritonsillar abscess, suppurative lymphadenitis, otitis media, or mastoiditis. This adult type occurs most often in children over 10 years of age.

Scarlet fever, perhaps the most definite and the most easily diagnosed streptococcal disease, probably should be regarded as a manifestation intermediate between the streptococcal fever of infants and young children and the acute local reaction of older children and young adults. According to Stevens and Dochez[9] and Cooke[10], an allergic response is necessary in order for streptococcal toxin to produce a rash; thus scarlet fever can never represent a first infection by the hemolytic streptococcus. The fact that the incidence of cases of scarlet fever is known to be highest in children between the third and tenth years of life suggests the absence of sensitivity in the early years. It is coming to be felt that streptococcal disease with a rash is no more serious as regards complications and communicability than any other manifestation of streptococcosis[7a,11].

Upon the age and previous experience of the individual, then, depends his response to the invading beta hemolytic streptococcus. If he is under 3 years and experiencing a first infection he will probably exhibit the low-grade, general, and rather protracted illness, somewhat easier to diagnose in retrospect, that has become known as the clinical entity "streptococcosis, childhood type". If, however, the subject is an older child or young adult and is experiencing a reinfection with the streptococcus, his illness probably will consist chiefly of a stormy, short bout

8. Powers, G. F. and Boisvert, P. L.: Tuberculosis and Streptococcosis, Yale J. Biol. & Med. 15:517-530 (Jan.) 1943.
9. Stevens, F. A. and Dochez, A. R.: Relation of Allergy to Scarlet Fever, New York State J. Med. 29:22-25 (Jan. 1) 1929.
10. Cooke, J. V.: Relation of Bacterial Allergy to Scarlet Fever, J. Allergy 1:22-34 (Nov.) 1929.
11. Boisvert, P. L.: Personal communication to the author.

of pharyngitis or tonsillitis. Infection of an individual 3 to 10 years of age, who has no immunity to the rash-producing toxin of the streptococcus, will produce an illness that may resemble either the childhood type of streptococcal fever or the adult type, and in addition to those features, a scarlatinal rash.

Dr. Powers and his co-workers have observed interesting similarities between streptococcosis and tuberculosis[8]. It is an accepted fact that the clinical manifestations of tuberculosis vary according to the age of the patient. There are three types of the disease: (1) the first infection type or the tuberculosis of infancy and childhood, (2) the reinfection or reactivation type or the tuberculosis of adolescent and adult life, and (3) the latent asymptomatic type. So it is with streptococcal disease. The various manifestations, previously regarded as separate entities, may represent the same disease, characterized in various ways, according to the age of the host, the site of localization, and previous experience with the invading organism, which determines the immunologic and allergic response to it. Dr. Trask[12] held that in order to understand disease one must study it as it manifests itself throughout the complete cycle of life. So, with streptococcal disease, it is of practical importance to the pediatrician to understand the pattern of behavior of the disease at the age period of his patient, so that he may deal with it most intelligently as regards therapy and prognosis.

Diagnosis

The epidemiologic method is helpful in the diagnosis of streptococcosis. This method is especially helpful if one remembers how the clinical picture of streptococcosis varies according to the age of the individual. For example, when one is confronted by an infant with cervical adenitis, it is useful to know that the father is recovering from follicular tonsillitis, or the brother from scarlet fever.

Scarlet fever and erysipelas are, perhaps, the diseases most generally recognized as being of streptococcal etiology. A fiery red throat with follicular tonsillar exudate and enlargement of the cervical glands, or otitis media in which spontaneous drainage occurs are other manifestations which are almost as indicative of streptococcal invasion as those previously mentioned. When these clinical pictures are recognized, one may attempt to confirm the impression of streptococcal disease by means of bacterial cultures.

Beta hemolytic streptococci are not found as contaminants in cultures of material from the nose and throat, and when they are found it is an indication of streptococcal disease or of recent contact with it[13]. The organisms are cultured rather easily when certain precautions are used, and where it is at all possible, an attempt should be made to confirm the diagnosis by a culture.

Another diagnostic aid is the antifibrinolysin test. In 1933 Tillett and Garner[14] observed that, whereas the coagulated plasma of normal persons is rapidly liquefied by the action of virulent streptococci, the plasma clot of certain individuals would resist this lytic action for as long as twenty-four hours. This resistant clot is observed in 80 per cent of children with streptococcic infection[13], and the test remains positive for some two to three weeks after the acute illness. For that reason it is of greatest aid in diagnosing nonsuppurative sequelae or those streptococcal diseases such as acute glomerulonephritis and rheumatic fever, which are not seen in the early stages when it is easiest to get a positive bacterial culture. This serologic test is not now practical for wide usage, and somewhat the same objection holds true for bacteriologic study. For the most part, therefore, the diagnosis of streptococcosis will depend upon the clinical acumen of the pediatrician and his use of epidemiologic study.

Treatment

The treatment of streptococcosis cannot be dismissed by the word sulfonamides. In 49 patients with tonsillitis due to hemolytic streptococci Hopkins[15] observed no beneficial effects from the drug. The period of pyrexia, the duration and severity of local symptoms, and the period of hospitalization were no shorter than those observed in a control group. Complications were actually more frequent in the sulfonamide treated cases than in the control group. The carrier

12. Trask, J. D.: Comparative Immunology in Pediatrics, Yale J. Biol. & Med. 1:1-7 (Oct.) 1928.

13. Boisvert, P. L.: Diagnosis of Streptococcosis in Children, Am. J. Dis. Child. 64:505-515 (Sept.) 1942.

14. Tillett, W. S. and Garner, R. L.: Fibrinolytic Activity of Hemolytic Streptococci, J. Exper. Med. 58:485-502 (Oct.) 1933.

15. Hopkins, W. A.: Use of the Sulphonamide Group of Drugs in the Treatment of Tonsillitis Due to Beta Haemolytic Streptococcus and in Acute Rheumatic Fever, Ann. Rheumat. Dis. 2:233-246, (Dec.) 1941.

state was not influenced by the drug. In a careful study French[16] found that the use of sulfanilamide is not justified in the treatment of scarlet fever. Studying 390 patients with moderately severe scarlet fever, Top and Young[17] found antitoxin and convalescent serum to give better results than sulfanilamide, as judged by clinical manifestations and complications. It is the feeling of the New Haven group that, when treated with sulfonamides, streptococcal catarrhal otitis media and cervical adenitis will run about their usual course. The action of the drug is antibacterial rather than antitoxic.

When the hemolytic streptococcus becomes invasive and produces such diseases as bacteremia, empyema, and meningitis, then the sulfonamides are of real value. Hartmann[18] reported 12 cases of hemolytic streptococcal meningitis, with a mortality of 11 per cent, contrasted with a mortality 100 per cent before chemotherapy. He used sulfapyridine, sulfamethylthiazole, and sulfathiazole. The spinal fluid of his patients was sterilized in from one to six days, and there was no return of positive cultures after sterilization, as is so often the case in pneumococcal or influenzal meningitis. In a series of 31 cases of streptococcal empyema without sulfonamide therapy the mortality rate was 58 per cent; in 15 patients treated with sulfonamides, 13 per cent[19]. From Brooklyn there is a recent report of 15 cases of streptococcal bacteremia with the loss of only 2 patients, both of whom were inadequately treated[20]. In that city it has been observed that, coincidental with the use of sulfonamides, the incidence of patients admitted to the hospital with streptococcal bacteremia has apparently been lowered. Finland and others[21] have concluded from their experience that the drug of choice in streptococcal infections is sulfadiazine. Hartmann[18] feels that sulfadiazine is preferable to sulfapyridine, and employs it in doses of 0.6 Gm. per kilogram of body weight per day for the first few days in severe infections.

Attention recently has been called to the report of McIndoe and Tilley[22], who described 11 cases of persistent hemolytic streptococcal infection, unresponsive to other treatment, which were controlled in four to ten days by a 0.1 per cent propamidine solution in a water soluble jelly base. Effective concentrations of propamidine do not inhibit the phagocytic action of leukocytes nor produce hemolysis, and its action is not greatly diminished in the presence of pus.

Gramicidin has been used in some infections but has been found to be hemolytic. The crude substance from which it is derived, tyrothricin, cannot be given orally or intravenously because of its toxicity[23], and it has not yet any important application in pediatrics.

Because of the limited supply of the powerful new bactericidal agent, penicillin, its possibilities in the treatment of streptococcosis and other infections have only begun to be realized.

Summary

Invasion of the human organism by beta hemolytic streptococci produces a number of disease manifestations, which may be considered as constituting the clinical entity streptococcosis.

About 95 per cent of the Beta hemolytic streptococci causing infection in human beings belong to Group A.

Diagnosis of streptococcosis will depend mainly upon the physician's familiarity with the disease picture and upon epidemiologic evidence, especially as regards the family of the patient. Further aids to diagnosis are the bacterial culture and the fibrinolysin test.

When the streptococcus becomes invasive and produces some such disease as bacteremia, meningitis, or empyema, sulfonamide therapy is indicated. The action of these drugs is antibacterial, not antitoxic.

Penicillin promises to be a useful agent in streptococcal disease.

Abstract of Discussion

Dr. R. B. Lawson (Winston-Salem): I should like to bring up one point that Dr. Turner's paper suggested. That is that the pediatrician, if the oppor-

16. French, J. O.: Sulphanilamide Treatment of Scarlet Fever, J. Hyg. 39:581-596 (Sept.) 1939.
17. Top, F. H. and Young, D. C.: Treatment of Moderately Severe Scarlet Fever, J.A.M.A. 117:2056-2060 (Dec. 13) 1941.
18. Hartmann, A. F. et al.: Diagnosis and Management of Severe Infections in Infants and Children, J. Pediat. 21: 591-624 (Nov.) 1942.
19. Powers, G. F.: Chemotherapy in the Treatment of Streptococcus Empyema in Children, Internat. Clin. 2:132-156 (June) 1941.
20. Kanof, A., Leber, I., and Kramer, B.: Chemotherapy in Childhood Sepsis, J.A.M.A. 121:11-17 (Jan. 2) 1943.
21. Finland, M., Peterson, O. L., and Goodwin, R. A., Jr.: Sulfadiazine; Further Clinical Studies of Its Efficacy and Toxic Effects in 460 Patients, Ann. Int. Med. 17:920-934 (Dec.) 1942.
22. McIndoe, A. H., and Tilley, A. R.: Propamidine in Chronic Streptococcal Infection of Raw Surfaces, Lancet 1:136-138 (Jan. 30) 1943.
23. Herrell, W. E. and Heilman, D.: Further Experimental and Clinical Studies on Gramicidin, Report of Central Society for Clinical Research, J.A.M.A. 118:1401 (April 18) 1942.

tunity presents itself, should try to get the local and state boards of health to pass stringent ordinances in regard to the quarantine of patients with streptococcal infections. There is no quarantine for sore throat; that for scarlet fever is only three weeks. I think we should make some effort to bring the laws of quarantine in line with the suggestions of the public health service.

Dr. Angus McBryde (Durham): The dosage of sulfadiazine recommended by Dr. Hartmann—0.6 Gm. per kilogram—is an enormous dose.

Another thing in regard to public-health measures. I wonder if it would not be in line to suggest that we do the same thing with scarlet fever that we do with diphtheria—be sure that there are no streptococci in the throat before we discharge the patient.

Dr. Turner: The dosage of 0.6 Gm. per kilogram was recommended by Dr. Hartmann for use in severe infections. In general, we would not think of using that much. It is about 4 grains per pound of body weight.

BRUCELLOSIS

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Our conception of brucellosis differs a great deal today from the conception held and promulgated by Sir David Bruce, one of the pioneers in the establishment of brucellosis as a clinical entity. Since the time of Bruce a great many papers have been written on brucellosis, setting forth its incidence, its diagnosis and the various forms of treatment. Much of this material has not stood the test of time, and consequently confusion has arisen. There are those who say, "Where is all the brucellosis? I hear enough about it but it never comes my way." On the other hand, there are those who see the specter of brucellosis in every unexplained illness. These widely divergent views of the enthusiast and the skeptic have prevented the formation of an accurate concept of this disease.

Incidence

Brucellosis is present often enough. So protean are its manifestations that we, the practitioners, are often confused and at times overwhelmed by the variety of symptoms that are attributed to this disease. The exact incidence of brucellosis in North Carolina is not known. In the United States as a whole it is said to be between 1 and 2 per cent. The truth of the matter is that in those areas where the disease is looked for, the incidence is high. In other areas the incidence is low because many cases go undiagnosed. Simpson says[1], "Surveys conducted during recent years in widely separated areas of the United States provide unmistakable evidence of the widespread distribution of brucellosis and leave little doubt that this disease is a common and frequently unrecognized source of debilitating illness."

In 1927 there were only 112 cases of brucellosis reported by the United States Public Health Service throughout the United States. The number of reported cases has risen consistently each year, and in 1939 there were 4501 cases reported. This seeming increase is due chiefly to the fact that we are beginning to think of brucellosis as a possibility in diagnostic problems. It is fair to state that the first step in the diagnosis of brucellosis is to *think* of brucellosis. The purpose of this presentation is to call your attention to the fact that brucellosis does exist in North Carolina and to point out the laboratory procedures which, when accurately performed and correctly interpreted, facilitate the diagnosis of brucellosis.

Etiology

The generic term Brucella includes the three common strains of the organism: Br. abortus, Br. melitensis, and Br. suis. Any of the three strains of Brucella may produce brucellosis in man. Different strains are predominant in different areas. For example, the melitensis strain is most common in the Island of Malta, where goats abound; the abortus strain is predominant in dairying country, and the suis strain predominates where swine are concentrated.

The common mode of transmission of the disease is the ingestion of raw milk or unpasteurized dairy products derived from cattle infected with Br. abortus. Simpson[1] states that in 248 patients with brucellosis whom he studied, the ingestion of raw milk or unpasteurized dairy products was demonstrated to be the source of the infection in almost every instance. Dairymen, veterinarians and slaughterhouse workers may contract the disease by direct dermal transmission, but this mode of infection accounts for a relatively small number of the proved cases. That brucellosis may be practically eliminated from a community by the adoption of a universal pasteurization ordinance has been demonstrated in Dayton, Ohio[1].

Read before the First General Session, Medical Society of the State of North Carolina, Raleigh, May 11, 1943.

1. Simpson, W. M.: Diagnosis and Management of Brucellosis, *Ann. Int. Med.* 15:408-430 (Sept.) 1941.

Symptomatology

The symptoms of this disease are so varied that no concise description or classification is possible. It is apparent that Bruce's classical description dealt primarily with the melitensis strain and was a picture of the acute infection. The widespread conception of the disease as being characterized by an undulating, intermittent fever, chills, sweats, muscle and joint pains, leukopenia with lymphocytosis, and anemia, pertains chiefly to the acute phase, and leaves a vast number of chronic cases outside of this clinical picture. As many writers have pointed out[1,2], a high percentage of cases pursue a relatively mild course which may be of many years' duration. Recent writers have directed particular attention to the chronic, ambulatory case of brucellosis where the patient, already dejected and apprehensive because of malaise, irritability and fatigue, has been further depressed by the diagnosis of neurasthenia given him by his physician. Some of our so-called neurotic patients who suffer from a multitude of complaints and who become a burden to themselves and a source of irritation to their physicians are actually the victims of chronic brucellosis.

It is necessary, in considering the symptomatology of this disease, to have clearly in mind two definite clinical courses which the disease may pursue. In acute brucellosis the prodromal symptoms are similar to those of any general infection. The onset is usually gradual, although abrupt manifestations with sharp chills and a rapid elevation of temperature have been described. Usually the patient becomes gradually aware of a sense of malaise, perhaps feeling fairly well in the morning and having an afternoon elevation of temperature. At this stage there may be mild chills. Frequently there is a disparity between the subjective sense of fever and the actual reading of the clinical thermometer. The patient may have a high fever and yet feel exceedingly well. Muscular pains and arthralgia are frequent. Localizing signs may develop in the brain, spinal cord or meninges. Chaikin[3] has recently reported hepatitis occurring in an acute Brucella infection. DeJong[4] has reported 11 cases of Brucella meningitis in which the organism was recovered from the spinal fluid by culture or animal inoculation. Ruedemann[5] believes that brucellosis is responsible for uveitis in a significant number of patients. The gallbladder may become the focus of infection, as it does in typhoid fever. The Brucella organism has been recovered both from duodenal drainage and from excised gallbladders. The acute stage of the disease lasts from a few days to several months, finally reaching an intermission by lysis. There may be more than one acute flare-up, separated by many months or years. The diagnosis is much more easily made in the acute phase of the disease, as the patient is obviously ill and adequate laboratory data may be had. It is the chronic, ambulatory case which is likely to go undiagnosed.

When brucellosis becomes chronic, the one outstanding symptom is weakness or fatigue. Fever may or may not be present at all. If there is a rise in temperature, it is likely to occur in the afternoon or at night and rarely goes above 100 F. Chilliness may be present but actual chills are infrequent. Sweats may be profuse at night and, if present, may constitute an outstanding symptom of the disease. Most of these unfortunate victims complain of fatigue and loss of ambition. In the past history there may be a story of an unexplained illness with fever. The patient may relate that he recovered from the attack but that since that time he has never regained his full strength.

To list all of the symptoms which have at times been attributed to chronic brucellosis would but add to the confusion which already exists. McGinty[6], for example, has listed 150 different manifestations of chronic brucellosis. Most students of the disease have emphasized the almost universal involvement of the nervous system. Irritability, malaise, inability to concentrate, and a sense of muscular weakness are often present. Frequently the most conscientious and careful physician can find no lesion to explain these chronic complaints, and all too often a diagnosis of neurosis is made. This led Evans[7] to say: "These facts challenge the right of a physician to make a diagnosis of neurasthenia, a diagnosis that is regarded as

2. Harris, H. J.: Brucellosis (Undulant Fever): Clinical and Subclinical, New York, Paul B. Hoeber, Inc., 1941.
3. Chaikin, N. W. and Schwimmer, D.: Hepatitis in the Course of Brucella Infection, Rev. Gastroenterol. 10:130-132 (Mar.-April) 1943.
4. DeJong, R. N., Jr.: Central Nervous System Involvement in Undulant Fever, J. Nerv. and Ment. Dis. 83:430-442 (April) 1936.
5. Ruedemann, A. D.: Uveitis, Cleveland Clin. Quart. 8:58-62 (Jan.) 1941.
6. McGinty, A. P. and Gambrell, W. E.: Chronic Brucellosis, Internat. Clin. 1:1-27 (March) 1939.
7. Evans, A. C.: Chronic Brucellosis, J.A.M.A. 103:665-667 (Sept. 1) 1934.

dishonorable by the patient and also by his family, his employer and his friends, without considering among other possibilities the diagnosis of chronic Brucellosis."

Laboratory Methods

Only comparatively recently have there been any laboratory procedures to help substantiate the clinical impression of brucellosis. The laboratory methods which may be helpful include: (1) isolation of the organism by cultural methods from blood, spinal fluid, excretions or excised tissue; (2) recovery of Brucella from cultures after animal inoculation; (3) the agglutination test; (4) the phagocytic index, and (5) the intradermal test.

There has been some confusion in interpreting laboratory data, and it should be emphasized that none of these procedures are diagnostic in themselves, unless the causative organism is actually cultured. The interpretation of the laboratory findings must be based upon an understanding of the limitations of the test. Cultural techniques have improved during the past few years, but they still require patience and a skilled laboratory technician. The guinea pig is the laboratory animal best suited for inoculation for the indirect recovery of Brucella, and the Poston technique is the one commonly used.

The agglutination test for brucellosis is widely known, but apparently it is the least understood of the various tests. It is comparable to other agglutination tests, such as the Widal test for typhoid fever. It is simply a test to determine the presence or absence of specific agglutinins in the blood. Harris[2] states that agglutinins should be thought of as evidence of resistance to infection rather than evidence of infection itself. Consequently, as the Widal test becomes positive only after some days, so does the agglutination test become positive in Brucella infection only after agglutinins have developed. Agglutinins *may* develop following infection, but not invariably, or necessarily early or in high titer. The existence of a low titer of agglutination does not exclude the possibility of chronic brucellosis. It indicates that further studies should be undertaken to rule out or confirm the impression of brucellosis. Harris[2] feels that agglutination titers of 1:80 or higher in ill patients may be accepted as evidence of infection.

In 1929 Giordano[8] gave the results of skin tests in 25 patients with proved brucellosis, and in 100 uninfected persons whom he used as controls. Positive skin tests were reported in all proved cases and negative skin tests in 99 per cent of the controls. If the skin test is accurately done and correctly interpreted, it is of value in the diagnosis of brucellosis. The skin test is comparable to the intradermal tuberculin test. A positive test indicates that the patient has been, *at some time*, infected. The present status of the infection must *still* be determined. It should be remembered that the agglutination test must be run prior to the intradermal test, as there is evidence to indicate that agglutinins may form in the blood following the intradermal test.

Huddleson, Johnson and Hamann[9] in 1933 described the phagocytic test as an additional diagnostic aid. The test is based on the relative ability of the polymorphonuclear leukocytes to phagocytize live Brucella organisms. The degree of phagocytosis is a relative but not infallible measure of the patient's resistance. According to Huddleson's theory, the phagocytic power of the blood is low during active infection and becomes high after recovery. If this theory is correct, a patient with a moderate-to-high titer of blood agglutinins and with a positive skin test should have a low phagocytic index. A series of phagocytic tests may be helpful in determining the course of the disease. For example, as the phagocytic index rises, the patient would be expected to improve clinically. On the other hand, if during an intermission the phagocytic index begins to fall, it suggests that an acute flare-up of the disease is at hand. Theoretical considerations support these contentions, but the phagocytic index must be interpreted with caution. Evans[7] regards the phagocytic test as the least reliable of the diagnostic studies available in cases of chronic brucellosis.

Therapy

The multitude of therapeutic aids offered for brucellosis is mute but unequivocal evidence of the inadequacy of them all. It is difficult to evaluate therapeutic efforts in a disease such as brucellosis which is charac-

8. Giordano, A. S.: Br. Abortus Infection in Man, Intradermal Reaction as an Aid in Diagnosis, J.A.M.A. 93:1957-1958 (Dec.) 1929.
9. Huddleson, I. F., Johnson, H. W. and Hamann, E. E.: Study of Opsono-Cytophagic Power of Blood and Allergic Skin Reaction in Brucella Infection and Immunity in Man, Am. J. Pub. Health 23:917-929 (Sept.) 1933.

terized by periods of exacerbation and quiescence. Foshay[10] and his associates have developed a new anti-Brucella serum, and there have been several favorable reports on its use. The standard prepared vaccines containing killed Br. abortus and suis, and Huddleson's liver broth fraction, called Brucellin[11], are still used. The few reports available indicate that results with Brucellin about equal those obtained with the vaccine. The sulfonamides have been tried in brucellosis, but the more recent and almost universal opinion is that chemotherapy has little if anything to offer in the management of this disease.

Prophylaxis

It may be said, therefore, that in the management of brucellosis the most important consideration is prophylaxis. Simpson[1] states that "The logical method for preventing the transmission of milk-borne Brucella infection to human beings is by pasteurization." Murray, McNutt and Curwin[12], among others, have shown that complete pasteurization will destroy Brucella organisms. Unfortunately, the supervision of cattle and of the milk supply, in many localities, has become a plaything of the politician.

Kolmer and his associates[13] have recently reported simultaneous immunization of human beings against both typhoid fever and brucellosis by the administration of vaccine containing both heat-killed B. typhosus and Br. abortus. Further confirmation of this work will be needed before its value is determined.

Conclusions

1. Brucellosis has become recognized as a health problem.

2. The symptoms of chronic brucellosis may be easily confused with neurosis or malingering.

3. Unless the organism is actually cultured, the laboratory procedures in themselves are helpful but not diagnostic.

4. Brucellosis is a disease which *can* be controlled by the universal pasteurization of milk and milk products.

10. Foshay, L. J.: (a) Laboratory Diagnosis of Undulant Fever, Am. J. Clin. Path. 10:176-187 (Feb.) 1940. (b) Bacteriol. 33:42, 1937.
11. Huddleson, I. F.: Bulletin 149, Agric. Exper. Station, Mich. State College, 1936.
12. Murray, C. et al.: J. Am. Vet. Med. Assoc. 33:336, 1932.
13. Kolmer, J. A., Bondi, A., Jr., and Rule, A. M.: Results of Active Immunization of Human Beings With Mixed Heat-Killed Vaccine of B. Typhosus, Br. Abortus, and Br. Melitensis, J. Infect. Dis. 67:268-274 (Nov.-Dec.), 1940.

THE MANAGEMENT OF THE OCCIPITOPOSTERIOR POSITION

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KINSTON

The frequency of occurrence of the occipitoposterior position cannot be accurately stated. It varies according to the time during labor when the patient is first examined. In patients examined early the incidence of posterior positions is around 40 per cent; in those examined late it is about 10 to 15 per cent.

Many obstetricians consider the posterior occiput as a normal position; others consider it distinctly pathological. Those who hold that it is a normal position usually qualify their statement by adding the provision, "if there is a child of normal size and a normal pelvis." In my opinion, the reason this position is pathological is that a great percentage of the babies in such cases are large and a great percentage of the pelves, while adequate as far as measurements are concerned, are abnormal in shape.

With proper care the maternal mortality should be no higher in cases of occipitoposterior position than in anterior positions. The fetal mortality will be higher because of the greater percentage of large babies and abnormally shaped pelves, and the greater necessity for operative interference. Occipitoposterior positions, in my opinion, are the most inadequately handled of all obstetrical complications. This poor management, I believe, is due to the following factors: (1) wrong or inadequate diagnosis, (2) haste, (3) insufficient knowledge of the mechanism of labor and the architecture of the pelvis.

The Importance of Diagnosis

Proper diagnosis is of paramount importance in the management of any medical, surgical or obstetrical problem. Especially is this true of the posterior occiput, because it is necessary to terminate many of these labors by operative interference. For the success of any obstetrical operation the diagnosis must be correct not only as it concerns the fetus but also as it applies to the maternal soft parts and bony structures.

There is a class of women in whom occipi-

Read before the Section on Obstetrics and Gynecology, Medical Society of the State of North Carolina, Raleigh, May 11, 1943.

toposterior positions are very common. These women are short and fat, with broad hips, a marked pelvic girdle of fat, male distribution of the pubic hair, dry skin and heavy features. The perineum is very tight and the cervix small. They present a picture of thyro-pituitary disorder. Labor is extremely difficult in most of them. They are all potential candidates for cesarean section.

The Danger of Haste

Labors with the occiput in the posterior position are usually prolonged. They are hard on the patient, the physician, and the family. In many instances the family is responsible for the unhappy outcome. The physician becomes tired and irritable and the family continually urges him to terminate the labor. He finally in desperation tries to drag a large fetus in a pathological position through an unprepared birth canal. The results are usually death of the fetus, extensive laceration of the birth canal, and sometimes maternal death from shock, hemorrhage or sepsis, or a combination of these factors.

The Mechanism of Labor and the Architecture of the Pelvis

The mechanism of labor—that is, the mechanics by which the fetus adjusts itself and descends through the bony pelvis—is one of the most important subjects in obstetrics. It should be reviewed by every practitioner of obstetrics at least once each year. There should be a mental picture of the changes taking place in the fetal head and in the birth canal from the onset of labor until the birth of the child, and this picture should be kept in mind during all obstetrical procedures.

With the more frequent use of the x-ray in recent years for pelvic mensuration we have learned much regarding the architecture of the pelvis. We have learned that not all female pelves are shaped alike, and that the shape of the pelvis has almost as much to do with the progress of labor as do the actual bony measurements. Four distinct types of pelves are recognized: the gynecoid, or typical female pelvis; the platypelloid or flat pelvis; the android, or male type of pelvis; and the anthropoid, or ape-type pelvis. We know that occipitoposterior positions are particularly likely to occur in the last two, and that the management is different in each type.

In the occipitoposterior position the small fontanel is found opposite the right or left sacro-iliac synchondrosis and the large fontanel opposite the right or left iliopectineal eminence, with the sagittal sutures in the oblique diameter. The head cannot possibly be born in this position, because of the presence of the rectum. Therefore, the occiput must either rotate through an arc of 135 degrees to an anterior position or through a 45 degree arc to a posterior position in which the occiput lies in the hollow of the sacrum. This rotation requires time and is responsible for the much longer labors in cases of the occipitoposterior position. At times the occiput fails to rotate to an anterior position. Instead it remains in the oblique diameter and rotates to the hollow of the sacrum or to a transverse position. Rotation may occur at the superior strait or at the perineum. In some cases rotation will take place in the early second stage, in others after hours of labor, and in some not at all. The management of the first group is the same as that of any posterior position. It is with the second and third groups that we are primarily concerned—those in which rotation occurs after many hours of labor and those in which it never occurs.

Management of Persistent Cases

The proper management of the persistent posterior occiput depends on many factors—namely, the condition of the cervix, the size of the fetus, the architecture of the pelvis, the ability of the operator, the surroundings, and the previous manipulations and efforts at delivery. The labor should be managed as though it were a trial labor before cesarean section. In fact, in a small percentage of these cases labor is best terminated by cesarean section. Examinations should be reduced to a minimum. After the initial examination no further ones are indicated until the patient is in active labor, with contractions every two to three minutes. Every effort should be made to prevent the introduction of exogenous bacteria into the birth canal. The membranes should be preserved, if possible, until the labor is well into the second stage. Frequently, however, they rupture prematurely. During the first stage of labor no operative interference is indicated. At first the contractions are usually irregular, weak and ineffectual; the cervix is undilated and barely effaced. The patient

complains of severe pain in the back. She is encouraged to stay out of bed, her mind is eased as much as possible, and the family is advised to expect a long, tedious labor. Since there is much pressure on the fetal head and since many labors will have to be terminated by operative interference, vitamin K in doses of 1 ampule every six hours is given as a prophylactic against cerebral hemorrhage. Analgesic agents are used freely during this period. Every effort is made to make the patient comfortable. I prefer morphine or one of its derivatives—pantopon or dilaudid—as the analgesic agent. Scopolamine and the barbiturates are not used during the early first stage because of their exciting effect upon some patients. Twenty-four to thirty-six hours may elapse before the contractions become regular and cervical dilatation begins. If anterior rotation occurs the labor will progress as in any anterior position. Before resorting to operative measures the physician must be patient, must wait for flexion, wait for descent, wait for rotation, wait for molding of the fetal head. With the free use of analgesia and ample time rotation will occur in many cases in which we do not expect it.

If after sufficient time, with the cervix dilated or easily dilatable, anterior rotation does not occur operative delivery must be employed. There are many procedures to choose from, each good in the hands of its particular advocate. The physician must choose the operation which he can do best, and if he can do none he should refer the patient to someone more familiar with operative obstetrics. Otherwise he may make an extremely difficult situation out of what could be a very simple one. All operative procedures have as their principle the rotation of the head to an anterior position. If rotation is performed with the usual type of forceps there must be a double application. After the head is rotated the pelvic curve of the forceps is inverted. The forceps must be removed and reapplied with its pelvic curve corresponding with the curve of the pelvis. This is the principle of the Scanzoni maneuver and Bill's modification of it. Kielland's forceps and Barton's forceps are especially designed for cases in which rotation is arrested in the transverse diameter. Kielland's forceps lacks a pelvic curve and does not have to be reapplied. Barton's forceps has a hinged blade which is easily applied under the symphysis. This forceps is used only as a rotator. When rotation has been completed, another type of forceps with the usual pelvic and cephalic curve must be used for traction and to complete the delivery. Version and extraction are sometimes used in cases of occipitoposterior position. Another method is that of manual rotation of the head. I prefer it to all other methods in most cases. In this procedure the hand is introduced into the vagina after a thorough stretching of the perineum; the head is grasped with the thumb over one ear and the finger on the opposite side of the head, and is displaced upward; pressure is made on the anterior shoulder, and by twisting the wrist the head is rotated to the anteroposterior diameter of the pelvis. The hand remains in place, the fingers palpating the ear, and one blade of the forceps is applied over this ear. The hand is removed and the second blade of the forceps is applied to the opposite side, the sagittal suture being used as a guide. By this method we have a touch picture of the cervix, the fetal head, and the degree of rotation. The application of the forceps blades is rechecked and then traction is made in the direction of the birth canal. The head will usually follow without difficulty if no disproportion exists. Episiotomy is performed almost routinely in primiparas. I believe that one of the chief advantages of manual rotation is the correction of many cases of unrecognized asynclitism by the displacement of the head.

For any of the above procedures I use fairly deep general anesthesia if there is no contraindication. Certainly it makes the operation much easier and is just as safe for the mother. Cyclopropane is my anesthetic of choice.

No one method of rotation or delivery is applicable to all cases. The station and size of the head have much to do with the method of delivery chosen. In cases in which there is a floating head, complete dilatation and effacement of the cervix, a normal pelvis, a fetus which is not too large and a uterus not too tight, version and extraction offer the best method of delivery. This method is especially applicable in multiparas with a pendulous abdomen, large pelvis and relaxed perineum, who are so likely to have occipitoposterior positions. When the occiput descends to the perineum in the hollow

of the sacrum it may either be delivered in the posterior position or rotated to the anterior position. If rotation is done with the head on the perineum I prefer the Scanzoni maneuver or double application of forceps. If the pelvis is of the anthropoid type the head had best be delivered in the occiput posterior position, for this type of pelvis is particularly adapted to that position. When the occiput is delivered in the posterior position the episiotomy must be much deeper or extension into the rectum may occur. In a few instances when the cervix is completely dilated, the membranes intact and the uterine contractions weak, irregular and ineffectual, artificial rupture of the membranes and pitocin given intramuscularly in 1 minim doses every half hour, if necessary, will result in spontaneous anterior rotation of the head and delivery. In those cases in which the uterine contractions never become strong, the head never becomes engaged and the cervix never dilates over 3 to 4 cm., even though there is a normal size pelvis, cesarean section is the safest procedure for mother and child. The low cervical operation would be the one of choice. Before the bladder flap of the perineum is closed, sulfanilamide crystals should be placed over the uterine incision. If there is a possibility of infection and if the patient has temperature the Porro operation should be considered.

For all other deliveries I prefer manual rotation of the head with forceps used for traction. Some physicians convert the posterior position to an anterior one during labor and leave the rest to nature. With this practice I do not agree. Frequently the head will return to its former position and a second manipulation will be necessary.

It must be remembered that for an operative delivery from below to be successful, certain conditions must be present. The cervix must be completely dilated and obliterated or easily dilatable. The membranes must be ruptured. There must be no disproportion between the passenger and the passage. Asepsis must be maintained. Adequate anesthesia must be available.

In conclusion, let me quote one of the mottoes on the walls of the delivery room of the Chicago Lying-In Hospital which was coined by Dr. De Lee: "Primum Nil Nocere" —"First do no harm."

Conclusions

1. Occipitoposterior positions are pathological.
2. Time and proper diagnosis are the most important factors in the management of these cases. Wait for flexion, for rotation, for descent, and for molding of the fetal head.
3. No operation is applicable to all cases. The parity of the patient, the size of the baby, the size and shape of the pelvis, the position and station of the head, and the condition of the cervix and perineum, all are important considerations in the choice of a procedure.
4. In my experience manual rotation of the head with forceps extraction has proven most satisfactory in the largest number of cases.

An optimum diet.—The obstacles in the path towards an optimum diet are numerous. A good or an adequate diet may be defined as the kind and quantity of food which sustains the health and general efficiency of otherwise normal people at different ages. This is of course a rough overall estimate since we have no accurate quantitative measure either of health or of physical and mental efficiency. An inadequate diet obviously is the kind and quantity of food that induces physical or mental impairments measurable by our present methods. An optimum diet implies much more than this. It might be defined as that kind and quantity of food which permits and promotes optimum growth, optimum performance of all biologic functions, optimum resistance to disease, optimum conservation of the factors of safety and powers of repair and optimum length of life with optimum efficiency within the framework of the hereditary potentialities of the individual and the species.—Carlson, A. J.: Some Obstacles in the Path Towards an Optimum Diet, Science 97:386 (April 30) 1943.

The measure of biologic fitness.—In experimental nutrition in animal husbandry the rate of growth, body size and body weight are usually taken as a measure of superiority of the diet within the framework of hereditary potentials and in the absence of recognizable disease. But one may question whether the height and other dimensions of man are adequate measures of an optimum diet so far as these elements are determined by the diet. I know of no evidence that the five foot ten inches individual is biologically, mentally and economically or even socially inferior to a six-footer. In some biological factors man is inferior to the gorilla, the tiger, the elephant and the horse. Yet he has survived and may some day conquer the jungle. The measure of biologic fitness of the man of tomorrow would seem to be the capacity to produce, serve and survive in the kind of environment worthwhile for man to live in. It seems probable that in this task the size and plasticity of the brain is of more significance than the length of the legs or the width of the shoulders. At any rate the dinosaur and the mastodon are extinct, but the ant carries on.—Carlson, A. J.: Some Obstacles in the Path Towards an Optimum Diet, Science 97:386 (April 30) 1943.

THUMBNAIL SKETCHES OF EMINENT PHYSICIANS

JOSIAH C. TRENT, M.D., *Editor*
DURHAM

V.

WILLIAM HARVEY (1578-1657) AND THE VALVES IN THE VEINS

Shortly before William Harvey died, Robert Boyle, the versatile natural philosopher, betook himself to call upon the aged physician to ask what had led him to the discovery of the circulation of the blood. Boyle was then in his middle or late twenties, and Harvey was approaching 80. In a philosophical discourse on other matters Boyle gave the following account of the famous interview:

> "I remember that when I asked our famous *Harvey,* in the only Discourse I had with him, (which was but a while before he dyed) What were the things that induc'd him to think of a *Circulation of the Blood?* He answer'd me, that when he took notice that the Valves in the Veins of so many several Parts of the Body, were so Plac'd that they gave free passage to the Blood Towards the Heart, but oppos'd the passage of the Venal Blood the Contrary way: He was invited to imagine, that so Provident a Cause as Nature had not so Plac'd so many Valves without Design: and no Design seem'd more probable, than That, since the Blood could not well, because of the interposing Valves, be Sent by the Veins to the Limbs; it should be Sent through the Arteries, and Return through the Veins, whose Valves did not oppose its course that way."

This statement is indeed significant, and I believe it gives the clue not only to the epic discovery, but also to the real basis of Harvey's contribution to scientific medicine. Many others had seen the valves in the veins, but no one had paused to inquire into their functions by means of experiment. Prior to Harvey, to be sure, there had been speculation from the pens of those who had also observed these structures. Salomon Alberti, who gave the first illustration of a venous valve (1585), interpreted their probable function in terms of the Galenic concept of the circulation, as did also Harvey's master, Fabricius ab Aquapendente, in his monograph "De venarum ostiolis" (1603), recently translated into English by Dr. K. J. Franklin.

The story of Harvey's life is known only in outline, but such details as have come down to us are highly significant. Born at Falkestone on April 1, 1578, the eldest of nine children of Thomas Harvey, a Kentish yeoman, he entered Cambridge University in May, 1593, graduated with the B.A. degree in 1597, and ultimately became a Fellow of Gonville and Caius College. Late in life he also passed a year or two in Oxford (1645-46) as Warden of Merton College.

After obtaining his B.A. in 1597 from Cambridge, Harvey, like Thomas Linacre one hundred years earlier and John Caius some fifty years before, repaired to Italy where he remained for five years, passing the greater part of his time at the University of Padua under the influence of the distinguished anatomist, Fabricius ab Aquapendente. Harvey took a medical degree at Padua on April 25, 1602, and the celebrated Harveian "stemma"[1] is still to be seen in the Aula Magna. During his years at Padua Fabricius frequently demonstrated to his classes the venous valves which he so fully described in the monograph published shortly after Harvey had departed. On returning to England Harvey apparently meditated upon his experiences with Fabricius and, probably in 1609, began a series of experiments which ultimately led to the great discovery. Meanwhile he was "incorporated" M.D. at Cambridge in 1602 and was elected a Fellow of the College of Physicians on June 5, 1607. Two years later (October 14, 1609) he attached himself to St. Bartholomew's Hospital as "Physician to the Hospital." He received an Oxford M.D. on December 7, 1642.

In his Lumleian lectures given to the College of Physicians in April, 1616, the notes of which are still preserved, he first gave the essence of the discovery in the following cryptic language:

> "*On account of the structure of the*

1. Denoting that in 1600 he stood as Councillor for his fellow English students—"The English Nation"—, as groups in the student body at Padua from a given country designated themselves.

EXERCITATIO
ANATOMICA DE
MOTV CORDIS ET SAN-
GVINIS IN ANIMALI-
BVS,
GVILIELMI HARVEI ANGLI,
Medici Regii, & Professoris Anatomiæ in Col-
legio Medicorum Londinensi.
FRANCOFVRTI,
Sumptibus GVILIELMI FITZERI.
ANNO M. DC. XXVIII.

Fig. 1. Title page of the first edition of Harvey's "De Motu Cordis" (1628), in which he first announced the discovery of the circulation of the blood. (Editor's collection).

heart, William Harvey is of the opinion that *the blood is constantly passed through the lungs into the aorta, as by two clacks of a water bellows to raise water.* Moreover, on account of the action of a bandage on the vessels of the arm he is of the opinion that *there is a transit of blood from the arteries to the veins.* It is thus demonstrated that *a perpetual motion of the blood in a circle is brought about by the beat of the heart.* What shall we say? Is this for the purpose of nutrition? Or is it for the better preservation of the blood and of the members by imparting heat to them, the blood by turns losing heat as it warms the members, and gaining heat from the heart?"

Here is the essence of the discovery: "There is a transit of blood from the arteries to the veins." It was announced formally to the world in 1628 (fig. 1) and it now seems clear that Harvey was led to make this great scientific deduction through having recognized the significance of the valves in the veins.

Undoubtedly there are many other discoveries "just around the corner" for those who are willing to appraise by means of experiment structures of unsettled use.

John F. Fulton, M.D.
Yale Medical Historical Library
New Haven, Conn.

Dr. Osler and GOK

One day when Dr. William Osler was in London he was invited to inspect a rather famous hospital of the old town; and there he was proudly shown about by several physicians and surgeons. Finally, the charts were reached. He looked them over carefully, observed the system of therapeutic abbreviations, such as D for diphtheria, DT for delirium tremens, SF for scarlet fever, TB for tuberculosis, and so on. All the diseases seemed to be pretty well under control except one, indicated by the symbol GOK. The famous doctor did not wish to display his ignorance, although he might have been pardoned for not being entirely **au courant** with the terminology of London hospitals.

"I observe," said he, "that you have a sweeping epidemic of **GOK** on your hands. By the way, this is a symbol not in common use in American medical circles; just what is GOK?"

"Oh," one of his hosts lightly replied, "when we can't diagnose, God Only Knows!"—Life of Ambrose Bierce, by Walter Neale.

Nervous Hyperthermia. Afternoon temperatures up to 99.6° are within the range of normal, especially in the case of a woman with jumpy nerves and an erratic thermostat in the hypothalamus. Certainly one should expect some variation from 98.6° as one goes from person to person, and recent studies by Sheldon indicate that in nervous persons the average temperature is usually about 0.5° higher than it is in calm persons. One must point out to the patient that there is a range through which the temperature varies every day in normal persons. It goes from perhaps 97° in the early morning to perhaps 99.5° in the afternoon. Certainly there is nothing sacred or fixed about the figure of 98.6°. There are cases on record of persons whose normal temperature varies around 100°. Some of these persons have been watched closely now for years, and as yet they have not come to any bad end. They are probably human variants like the very fat and the very thin or the very short and the very tall. I have cured scores of nervous women of chronic "fever" simply by getting them to throw their thermometer away and then to go about their business.—Alvarez, Walter C.: Nervousness, Indigestion, and Pain, New York, Paul B. Hoeber, Inc., 1943, p. 179.

North Carolina Medical Journal

Owned and Published by
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All advertisements are accepted subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Annual subscription $3.00 Single copies, 30c
Publication office: Penry-Aitchison Printing Co., 118 West Third Street, Winston-Salem 1, N. C.

MAY, 1944

THE STATE MEETING

The ninety-first annual session of the Medical Society of the State of North Carolina was memorable for a number of reasons. The number and quality of the scientific exhibits alone were enough to make the meeting worth while, and many excellent scientific papers were presented. The address and recommendations of President James Vernon to the House of Delegates, as well as his more formal address before the first general session, deserve the overworked adjective "statesmanlike". His presidential address is made the leading feature of this month's JOURNAL. Notable among his recommendations are the suggestions that a reference committee be appointed to consider and report on resolutions presented to the House of Delegates; that a Post-War Planning and Rehabilitation Committee be appointed; that a Historical Commission be set up by the incoming president; and that a committee, to take the place of former committees on Policy and Planning, Social Security, and Socialized Medicine, be appointed to cooperate with the Council on Medical Service and Public Relations of the American Medical Association.

Naturally the most important part of President Vernon's addresses dealt with Governor Broughton's proposals to establish a four year medical school at the University of North Carolina, and to build a number of hospitals wherever they are needed throughout the state. After a somewhat protracted discussion in the House of Delegates, Dr. J. S. Gaul offered a motion to the effect that the Society express its approval of the principles of the Governor's proposals, without commitment. This motion was passed without a dissenting vote.

An excellent precedent was established in allowing the president-elect to outline his policy before the first general session. Dr. Whitaker's address will be published in full in next month's issue of the NORTH CAROLINA MEDICAL JOURNAL.

Except for the discussion of the Governor's proposals, the meeting of the House of Delegates was quite harmonious, and the rest of the business on the agenda was dispatched with gratifying speed.

The Nominating Committee again apparently registered the will of the majority when it brought in its report. Dr. Oren Moore, of Charlotte, has often shown his ability as a presiding officer. His genial disposition, his ready humor, and his professional attainments make him a worthy successor to the long list of men who have been chosen for the highest office in the gift of the Society. The other officers are alike most acceptable.

The election of the Board of Examiners, as usual, created great interest. Thirteen men were nominated, and of these, five received a majority on the first ballot. The selection of the remaining two required half a dozen more ballots, and consumed much of the afternoon. It was unfortunate for the essayists in the Wednesday afternoon section meetings that almost every paper had to be interrupted or sandwiched between episodes of voting; but such is the essence of democracy in action.

Tuesday was featured by the Officers' Breakfast, the exhibition jump of the para-

troopers from Camp Mackall, and the President's Night. The attendance on the breakfast was remarkable, considering the early hour; and those who got up to come were repaid by the addresses of Drs. Vernon, Whitaker, McAllister, and Gilmour. The banquet, with Dr. Donnell Cobb as toastmaster, was perhaps the most enjoyable part of the whole meeting. Strickland Gillilan, best known as the author of "Off again, on again, gone again, Finnigan," gave a humorous address, "Just Among Ourselves." For some reason, this justly famed humorist was not in his best form. The fact that the dining room of the Carolina Hotel is far from an ideal auditorium may have had something to do with it. Another handicap was the lateness of the hour when he got under way. Whatever the reason, many who had heard him before were frankly disappointed in his address.

The floor show given in the ball room by the Department of Physical Education of Flora Macdonald College was a most pleasant interlude between the banquet and the President's Ball. It was well presented and cordially received.

It is hard to overestimate the executive ability of Secretary Roscoe McMillan, who arranged the program. The ninety-first session deserves to be remembered as one of the best ever held.

* * * *

WAR PSYCHONEUROSES

In the *New England Journal of Medicine* for March 9, Henderson and Moore[1] discuss the first 200 neuropsychiatric cases admitted to "a hospital of the United States armed forces somewhere in the South Pacific." The number of neuropsychiatric cases amounted to 23 per cent—almost one fourth—of the total admissions!

These cases were classified as follows: Anxiety neurosis, 49 per cent; hysteria, 20 per cent; constitutional psychopathy, 7 per cent; schizophrenia, 6 per cent; epilepsy, 4 per cent; manic-depressive psychosis, 5 per cent; and miscellaneous disorders, 9 per cent.

The interesting observation was made that 30 per cent of the entire group gave a history of head injury associated with unconsciousness prior to entering service. While in most cases there was no obvious relation to the later development of psychoneurosis, it was thought that such an injury might have been a contributory factor in at least some of the cases.

That fatigue and repeated psychic trauma are important factors is evidenced by the time required for the patients to "break" mentally after going into the combat zone. "Thirty-five per cent broke down in the second and third week, 10 per cent in the fourth week, and 35 per cent in the tenth, eleventh and twelfth weeks."

The authors comment as follows on the part played by alcohol: "many of the patients when on liberty . . . imbibed alcohol too freely . . . The patients with hysteria, being relatively comfortable, drank less. Those with anxiety symptoms for the most part did not persist in their drinking because they quickly learned that the relief they obtained did not last very long. Alcoholism *per se* occasionally occurred as a symptom but was in no way a definite or a major problem, although alcoholic beverages were available. On the whole, the part alcohol seemed to play in the picture was a beneficial one. It was generally used as a relaxing agent, for purposes of recreation,—usually in a social setting,—and to relieve or ameliorate the tension and the frustrations of war. Occasional moderate drinking when off duty or on leave is a part of the pattern of military life."

Sixty-five per cent of these patients had bitten their nails when young; the majority of these had continued the habit, and 5 per cent began it after entering the service. This finding was present in more than 95 per cent of those with anxiety symptoms.

Of great interest was the home background of these patients. The mother was usually nervous and was always overanxious about her children. Most of the mothers would wait up for their boys to come in at night up to the time they entered the service. The father was usually not a strong character; in more than half the cases he drank to excess, and often while drinking would try to assert his virility by abusing or even beating the mother, forcing her and the children "to form a unit and feel together, relatively helpless in a hostile world. This vicious emotional cycle in the family setup was repeatedly described, and in nearly every case a mutually dependent relation existed between mother and child."

The treatment of these patients has been carried out largely on the conventional lines of sedation, psychotherapy — chiefly in groups—and occupational therapy. The authors conclude this fascinating paper with the rather pessimistic statement that "For practical purposes the person who has once broken under the stress of battle is no longer able to do combat duty." However, they do believe that "much could be done in the matter of rehabilitation . . . if selected patients could be . . . assigned to noncombat duties in keeping with their abilities . . . under psychiatric supervision."

1. Henderson, J. L. and Moore, Merrill: The Psychoneuroses of War, New England J. Med. 230:273-278 (March 9) 1944.

* * * *

EDITORIAL NOTES

The popularity of Pinehurst as a meeting place for the State Society was evidenced by the large attendance, and by the decision of the Nominating Committee to hold the meeting there again next year.

* * *

The weather could not have been more nearly perfect if it had been ordered especially for the occasion. Those who recalled sweltering in the Sir Walter Hotel last year, when the air conditioning equipment went on a strike, enjoyed the delightful temperature at Pinehurst all the more by contrast.

* * *

One striking improvement, for which the Society has Roscoe McMillan to thank, is the promptness with which all meetings were started, and the precision with which the speakers were limited to their allotted time. Let us hope we will never slump back into the old rut of running from half an hour to an hour and a half late.

* * *

The address of Dr. James E. Paullin, President of the American Medical Association, was most interesting. His subject was "Medical Planning for the Post-War Period." His remarks were clear-cut, crisp, and to the point. It is hoped that the address will be printed in an early issue of the NORTH CAROLINA MEDICAL JOURNAL.

The address of Judge L. R. Varser of Lumberton, "Socialized Medicine from a Layman's Viewpoint", was one of the high lights of the first general session. When Secretary McMillan reluctantly called time on him, many voices were heard to say, "Let him go on as long as he wants to speak;" but the secretary refused to show any favoritism. It may be recalled that Judge Varser's address to the Lumberton Rotary Club, on the Wagner-Murray-Dingell Bill, was published in the October number of this journal. It was reprinted in the last *Bulletin* of the Woman's Auxiliary to the American Medical Association.

* * *

On behalf of its Editorial Board, the NORTH CAROLINA MEDICAL JOURNAL wishes to express appreciation of the vote of confidence shown by the re-election of the whole Board. The editor and the assistant editor particularly are grateful for the very substantial evidence of appreciation of their efforts. They pledge themselves to strive harder than ever to be worthy of the confidence of the doctors of North Carolina.

* * *

Political currents in our society may run deep and strong below the surface; but the most obvious political campaigning appears every six years, when the seven members of the Board of Examiners are elected. The suggestion has been made—and is worth considering—that each district should unite on one man in the future, and then let the ten names presented be voted upon. This year three men from one city and two from another were nominated; and although one man was finally selected from each place, it was interesting that the other five members of the Board were chosen on the first ballot, and that these two were elected only after a long succession of ballots.

* * *

Tuesday afternoon almost everyone at the meeting turned out to witness the thrilling spectacle of sixty paratroopers jumping from planes flying low over the race track. Because of the strong wind, many of the boys landed in the tree tops, and the sight was more calculated to strain the nerves than to soothe them.

CASE REPORTS

PSYCHOSOMATIC CONFERENCE

DUKE UNIVERSITY SCHOOL OF MEDICINE

Medical History and Findings

DR. A. J. ALTER: A 29 year old white, single male was admitted to Duke Hospital on March 14, 1944, for the second time, complaining of severe epigastric pain and of hematemesis. The present illness began ten days prior to admission, at which time he experienced nausea and vomiting and severe epigastric pain which was not relieved by food, alkali, or amphojel. The pain was described as "cramping", and became particularly severe at night. Three days prior to admission the patient noted fresh, frothy red blood estimated to be one-third of a cupful in quantity, in his vomitus. For two days he had noted tarry stools.

The patient was first admitted to Duke Hospital in September of 1943 with a chief complaint of "ulcer" which he had had for four and one-half years, and tarry stools and hematemesis of six days' duration. On that admission the patient had marked epigastric tenderness and complained constantly of severe abdominal pain. Following x-ray examination a diagnosis of duodenal ulcer was made, and the patient was put on the Sippy diet and given amphojel and tincture of belladonna, with subsequent improvement. In the interval up to his present attack he had remained entirely well on this therapy.

On the present admission he was found to be a well developed, well nourished white man showing general discomfort. Both legs have been amputated, the right at mid-thigh, and the left just above the knee; and in addition there is absence of the index and third fingers of the right hand. The temperature was 37.4 C., pulse 84, respirations 20, blood pressure 124 systolic, 86 diastolic. Positive findings, in addition to the amputation stumps, include poor transillumination of the left frontal sinus, dirty and carious teeth, a liver palpable two finger-breadths below the right costal margin, exquisite tenderness to palpation in the epigastrium, external and internal hemorrhoids. Neurological examination was entirely normal.

Accessory clinical findings: Blood Kahn and Kline tests were negative. A blood count on March 14 showed 95.6 per cent hemoglobin, 4,080,000 red blood cells, and 9280 white blood cells, with a normal differential count. A fresh smear showed no abnormality in the size or shape of the red blood cells. A stained smear was normal. On March 25 the hemoglobin was 93 per cent, the red blood cells 3,800,000. A benzidine test of the stool was negative. The van den Bergh test, total plasma proteins, albumin-globulin ratio, and serum cholesterol were within normal limits. The urinalysis was normal. An x-ray examination was reported as follows: "The stomach showed some thickening of the rugae, but no definite intrinsic lesion. The duodenal bulb was deformed with some spasm and tenderness, but no definite crater. Oral cholecystograms show a normally functioning gallbladder without stones."

A diagnosis of duodenal ulcer was made. Because of this patient's obvious anxiety on the first admission, a psychiatric consultation was requested at that time, and on this admission also the patient was seen by a psychiatric consultant.

Psychiatric History and Findings

DR. FEARING: Since an accident in 1937 in which he lost both legs and part of one hand this patient has complained on occasion of insomnia, crying, feelings of hopelessness, weakness and faintness, anxiety dreams, and anxiety attacks. The interplay of these psychiatric symptoms and of his medical complaints will be outlined in the following psychiatric history.

The patient was born on a farm in Orange County and was next to the youngest of ten siblings. The family was poor, but did not suffer deprivation. The patient can recall no childhood neurotic traits. The only incidence of mental disorder recorded in the family was related to the patient's father, who spent a short time at the State Hospital in Raleigh when he was a young man. The father died in 1939 at the age of 73. The mother is described as a hard-working, conscientious woman. She has high blood pressure, and her doctors have warned her against doing too much work. The patient is very fond of his mother, and they get along well, except where the younger brother is concerned. The patient did well in school, but stopped in the eleventh grade to go to work. He states that he was very anxious to become independent. He became a

successful stonemason. Several years prior to the patient's accident, his father became ill, and the patient automatically took over the support of the family. Up to that time the only problem to the patient was that of a brother two years his junior who refused to work, whom the patient had supported, and who later became an important factor in the patient's illness.

This was the situation in June of 1937. At that time the car in which the patient was riding was struck by a train and the patient received serious injuries. Both legs were crushed, and immediate amputation was necessary. He also lost two fingers from his right hand. He does not remember the wreck, but says that he was comatose or semi-comatose for about a week. In addition to the injuries of his limbs, he had severe contusions over the occipital region and over the right frontal region of the head. It was not until about three weeks after the accident that he was told that his legs had been amputated. He states that following this he had another semi-comatose period lasting for several days. When he realized that his legs had been removed, he felt that life was practically over for him, for he didn't think that anyone without legs had any place in the world. He felt very nervous and very weak, and cried a great deal. After about a month he was allowed to be up in a wheelchair in the hospital. During this time he was quite restless, rolling about the hospital almost constantly all day long. At night he could not sleep and would lie awake for long periods of time, worrying about the future. When he did sleep, he had terrifying dreams not related to the wreck itself, but usually of falling from a high place.

He states that since the accident he has been a changed man. He never worried before, but let each day take care of itself. Now he worries about everything in the future. On returning home from the hospital he still got along poorly. He felt that he couldn't face people, that he wasn't good for anything, and that he would never be able to earn any money again. His sleep was still broken, and terrifying dreams lasted for about eight months. He frequently awoke frightened. He was very restless, but hated to go out of the house because he didn't want to meet people. During the first year following the accident he drank considerably.

In January of 1939 one of the patient's older brothers fell from a scaffold and was killed. A month later, the patient's father died. Immediately following his father's death, the patient noticed increased nervousness, and just a few days after his father's death, he noticed the first epigastric pain. Within a month he had hematemesis. He entered Watts Hospital, and peptic ulcer was diagnosed by x-ray. During a period of about six weeks to two months he again had difficulty in sleeping, and a return of the anxiety dreams which he had had following the accident. The ulcer symptoms cleared up in six to eight weeks.

In July of 1939, the patient obtained a wheelchair, bought some supplies such as magazines, shaving cream, and razor blades, and sold them in his neighborhood and downtown. He only made about $5.00 a week at this, but says that he felt much better while he was earning some money. At this time, there was no one at home except the patient, his mother, who received an old-age benefit pension of about $20.00 a month, and his younger brother, who was still not working. The patient had been paid $3,500 after the wreck and waived any further claim to compensation.

In the fall of 1941, the patient began having ulcer pain again, with increase in nervousness and return of his anxiety dreams. On December 2, 1941, he had another hematemesis. This episode of ulcer pain lasted about a month and cleared up under treatment with the Sippy diet. No direct precipitating factors have been found for this episode.

In May of 1943 the patient's brother, after being discharged from the army because of "nervous indigestion" was married, and later lost his job and came back home with a wife and child. He made no effort to get work, and drank considerably. His wife refused to work also, and allowed the patient's mother to take care of the child and do all of the housework. The patient said that he knew that his mother had high blood pressure and that the doctor had told her not to work. He felt that his brother and sister-in-law were "killing" her. In September of 1943 he developed ulcer pain again, and soon after had another hemorrhage. This time, as on previous occasions, he had return of his anxiety dreams for a period of about a month. On this admission Dr. Vanderlind

mentioned in his notes that the patient appeared to be acutely depressed, and that he had been depressed and worried before his preceding attack.

On the first admission to Duke Hospital in September, 1943, the psychiatric consultant suggested some training for this man, so that he might be gainfully employed. In January of 1944 he began training as a watchmaker in Spencer, and he felt more secure and happy than he had for years. He enjoyed his work, which consisted during the first three months of making his tools. He was commended for his good work by the instructors.

About a month before his last admission the patient learned that his brother had been drinking heavily and that their mother had been worrying about it. He felt troubled and tense. About a week later he began to make watch parts. It was delicate, painstaking work, and he felt tense when he went home at night. He had difficulty in sleeping and had anxiety dreams. Epigastric pain began again. Four days before admission, he had another hematemesis. This attack was more severe than the others. The pain has been more persistent and he has not responded as well to the Sippy diet and other medical measures as before. He has also had more difficulty with anxiety dreams than usual, and has had some anxiety attacks as well.

Discussion

DR. A. J. ALTER: It is to be noted that on two occasions this patient has come to the hospital with the story of hematemesis and tarry stools, but that on neither occasion have we found evidence of blood in the feces. However, from the x-ray findings we made the diagnosis of duodenal ulcer.

DR. GREENHILL: When you first saw him, were his symptoms typical of ulcer?

DR. ALTER: Yes, we thought so.

DR. FEARING: I have had about five interviews with this man. I think that some of the psychiatric factors we have pointed out play a definite part in the development of his ulcer symptoms. The aggression against his brother was brought out very strongly the last time I saw him, although he didn't mention it in the first four interviews; it came out very slowly, and I think that it is one of the important factors. I don't know very much about his relationship with his father, which may be of significance, since his symptoms came on right after his father's death. There is probably more material there than I have gotten from him. I think this man right now tends toward an invalid reaction. Although he is very anxious to work, wants to earn a living, and has made a living in spite of his handicap, still he comes to the hospital at the present time with a minimum of symptoms which he falls back on quickly.

DR. HESSER: This case represents an interesting psychosomatic problem often seen in individuals suffering from stomach complaints, with or without demonstrable structural changes in the stomach wall. The entire problem of the influence which the individual's temperamental make-up and his emotional reaction have upon higher levels of consciousness has been reviewed in a monograph on human gastric function by Wolf and Wolff[1]. They carried out studies on the motility, vascularity, and secretory activity of the stomach in a subject with an old gastrostomy. He was a fairly well adjusted, but emotionally labile individual who could be observed in different moods in relation to specific situations, created or otherwise. They found that attitudes associated with a reaction of flight or with withdrawal from an emotionally charged situation produced depression of acidity, motor activity, and vascularity of the stomach. Internal conflicts or unsatisfied aggressions produced an acceleration of these functions. If the latter disturbances were prolonged and accompanied by marked and sustained increase in gastric motility, secretion, and vascularity, a picture of gastritis resulted. From this point it was easy to visualize ulcer formation.

The role of the nervous system in regulating the activity of the gastro-intestinal tract has been substantiated in a number of experimental and clinical observations too extensive to be reviewed at this time. Suffice it to say, the area controlling autonomic motor function has been shown to be closely associated in the cerebral cortex with that of corresponding somatic function. This close association helps to explain the relationship between personality integration, representing all levels of function in the nervous system, and visible neurophysiological disorders involved in any part or

1. Wolf, Stewart and Wolff, Harold G.: Human Gastric Function, New York, Oxford University Press, 1943.

whole disorder in the individual's ability to adjust to his environment.

DR. LOEWENBACH: I wonder if there is any connection between the cerebral concussion this man had and his ulcer. Sometimes years after a concussion we find disturbed electroencephalographic activity.

DR. GREENHILL: I know this question has occurred to several of us. You are undoubtedly thinking of Cushing's findings on the development of gastric ulcer in patients with injuries or tumors involving the base of the brain; of the work reported by Fulton and others of his group[2] demonstrating production of pronounced hyperperistalsis and mucosal hemorrhages in the intestinal tract following stimulation of definite areas of the frontal lobe in monkeys; and of the experimental production of mucosal hemorrhages by destruction of the tuber cinereum of the hypothalamus. This possibility of course can only be of theoretical consideration in this case.

DR. DE JONG: It is generally accepted that there is a very decided relationship between emotional life and peptic ulcer. I also thought immediately of Harold G. Wolff's work[1]. Dr. Wolff told me that it was even possible to produce small hemorrhages in the mucosa of their subject's fistula. These occurred when very strong negative emotional stimuli, such as threatening the man with discharge from his job, were given.

It cannot be denied that the present case is a good example of the interrelationship of medical and psychological symptoms. I think that this man should have intensive psychotherapy. He should have the opportunity to express his feelings to a psychiatrist and should be treated along psychological lines. I would be very much interested to see if his medical symptoms decrease under psychotherapy.

DR. C. D. DAVIS: Would this man have developed an ulcer if he had not had his terrible accident?

DR. GREENHILL: Dr. Davis' question will be answered in this summary.

This patient has had several hospitalizations for duodenal ulcer. That diagnosis was made unequivocally by the Medical Service here. It appears that if any patient with gastric or duodenal ulcer is investigated carefully enough, with a detailed history which does not limit itself only to the half of the patient made up of his organs in terms of their function and structure, but which takes into account that considerable portion of every human being comprised of his social and personality aspects, we will find characteristics of etiology in some degree similar to this man's. More precisely, individuals with ulcer have certain emotional problems which produce exacerbation of ulcer symptoms. I cannot give you any figures on gastric ulcer, because there are none as far as I know, but it has been shown by Cobb and his group[3] that 60 per cent of patients with bronchial asthma and rheumatoid arthritis develop their medical symptoms in association with emotional problems. Therefore, if in treating this patient discussed today one works only with the medical symptoms that he presents, we must consider that there is a more or less superficial handling of the case from the standpoint of this individual as a person. Underneath the medical surface there is a great deal of the patient's life that has to be brought into consideration in order to treat him adequately. There is little use in treating patients of this type purely from a medical standpoint, when underneath the surface there is so much psychopathological material which will produce the ulcer again.

In the literature on psychosomatic medicine it has been pointed out that the psychosomatic disorders in general are characterized by: (1) exacerbations and remissions of a chronic disease; (2) precipitation of the exacerbation by an emotional stimulus; (3) psychoneurotic symptoms; (4) prevalence of tension; and (5) certain personality characteristics often specific to the type of disorder. This patient's illness fits well into these categories. On several occasions he has had exacerbations of duodenal ulcer, most of which have been precipitated by an emotional problem. Every recurrence of ulcer symptoms has been preceded and accompanied by nervousness, tension, depression, restlessness, and anxiety dreams. Every attack but one has been associated with an event in the environment which grossly disturbed the patient—such as his accident, the death of his father and brother, and the return of his wayward brother to the home, producing a dangerous strain upon his hypertensive

2. Fulton, J. F.: Cerebral Regulation of Autonomic Function, Proc. Inter-State Post-Graduate Medical Assembly of North America, October, 1936.

3. (a) McDermott, N. T. and Cobb, S.: Psychiatric Survey of 50 Cases of Bronchial Asthma, Psychosom. Med. 1:203-244 (April) 1939.
(b) Cobb, S., Bauer, W., and Whiting, I.: Environmental Factors in Rheumatoid Arthritis, J.A.M.A. 113:668-670 (Aug. 19) 1939.

mother. In addition, he has shown psychoneurotic symptoms, has complained of great tension, and has some personality characteristics which Franz Alexander described in the ulcer patient[4]. Alexander pointed out that the ulcer patient was an individual who strove fiercely to be independent and then would relapse into situations of great dependency, at which point an ulcer would develop. This patient seems to conform to that pattern. He succeeded in being independent until his accident handicapped him and forced him into a situation of dependency, and at precisely this time ulcer symptoms developed. Furthermore, whenever demands were made upon him to be more than ever self-reliant, as when his father died and when the situation called for his supporting the brother and the brother's family, his fear of his inability to meet these situations fully coincided with the development of ulcer symptoms. In answer to Dr. Davis' question, it is doubtful that this man would ever have developed an ulcer if he had not had the accident and could have continued to be independent and adequate.

I consider the psychopathological feature of neuromuscular and visceral tension more important than the striving for independence. The description of the ulcer patient given by clinicians for years has been the description of the tense patient. It is certain that patients with great tension may develop ulcer. This man has been faced with situations fraught with tension and has had pronounced aggressive feelings toward the brother, about which little could be done. The therapy of this case should be directed in large part, it seems to me, toward the relief of tension in this man by helping him with his social situation; but more importtant, by educating him to realize the mechanism behind the production of his tension and methods whereby he can control it.

4. Alexander, F.: The Influence of Psychologic Factors Upon Gastro-Intestinal Disturbances, Psychoanalyt. Quart. 3: 501-539 (Oct.) 1934.

Functional Disorders.—In general hospital practice physicians are so busy with the critically sick, and in clinical teaching they are so concerned with training students in physical diagnosis and attempting to show them all types of organic disease that they do not pay as much attention as they should to the functional disorders. Many a student enters upon his career having hardly heard of them except in his course in psychiatry, and without the faintest conception of how large a part they will play in his future practice.—Francis W. Peabody: Doctor and Patient, New York, The Macmillan Co., 1939.

CLINICO-PATHOLOGICAL CONFERENCE

Bowman Gray School of Medicine of Wake Forest College

A 15 year old single white female entered the North Carolina Baptist Hospital on January 25, 1944, complaining of "smothering," "cough," and "hurting around the heart." Little was learned of her past history. As a small child she had had measles, mumps, whooping cough, chicken pox and influenza. There was no history suggestive of rheumatic fever, tuberculosis, scarlet fever or diphtheria. She apparently had been in good health until the present illness.

About one year before admission she began to notice shortness of breath on exertion which increased in severity. She dated the onset of her present severe symptoms to four months before admission, when she started having "smothering spells" characterized by extreme shortness of breath and difficulty in breathing when she would lie flat in bed. Turning to either side would partially relieve the dyspnea. She had also had an aching pain beneath the lower third of the sternum which was present more or less constantly, was not definitely related to the heart beat, and was intensified by lying flat in bed, coughing or breathing deeply. She had noted palpitation but no irregularity of the heart. During this four month period she had been increasingly weak and had spent most of the time in bed. She stated that her weight had decreased from 165 pounds four months previously to 95 pounds at the time of admission. Her appetite had been poor and there had been occasional vomiting. She had had chilly sensations but no frank chills. She did not know whether or not she had had fever. A persistent paroxysmal cough had been present and was productive of white, frothy sputum without blood. She had noted no red spots on her skin and had had no pain in her finger tips. She had had two attacks of profuse bleeding from the nose since the onset of the present illness. Her legs had become swollen and several blue spots had appeared on her thighs. Recently her skin had become darker in color.

Physical examination: The blood pressure was 100 systolic, 65 diastolic, the temperature 101 F., pulse 120, respirations 50. The

patient appeared critically ill; she was sitting up in bed and breathing with difficulty. She was emaciated and obviously had lost a great deal of weight. Respirations were shallow and rapid and the patient was somewhat drowsy. The skin was warm, dry and rough, and had a dusky appearance. No petechiae were noted on the skin or mucous membranes. One observer noted patchy brownish pigmentation about the abdomen, over the knuckles, and in the mouth. The neck veins were moderately distended when the patient was in a sitting position. There was diffuse heaving of the precordium with each heart beat. The point of maximum impulse was in the fifth interspace at the anterior axillary line and was moderately forceful. A systolic thrill was felt at the apex. The rhythm was regular and the rate quite rapid. There was a loud blowing grade III-IV systolic murmur at the apex which could be heard over the precordium. At the base and down the left sternal border there was a rough blowing grade II-III early diastolic murmur. These murmurs were heard in the back near the angle of the left scapula, and at one point the murmurs merged into a to and fro sound which was scratchy and sounded exactly like a pericardial friction rub. The systolic second sound was loud and snapping; the pulmonic second sound was accentuated and much louder than the aortic second sound. The lungs were clear. The liver was palpable four finger-breadths below the right costal margin and was quite tender. No pulsations of the liver were noted. The spleen was thought by some observers to be definitely palpable; others did not feel it. There were several bluish areas, about 0.5 cm. in diameter, over the thighs. There was moderate pitting edema of the lower legs and feet. There seemed to be slight clubbing of the fingers. Neurological examination was negative.

Accessory clinical findings: Blood examination on admission showed a hemoglobin of 8 Gm., 3,450,000 red blood cells, and 16,500 white blood cells with 70 per cent polymorphonuclears. A smear showed hypochromia. The hematocrit was 32 volumes per cent, the sedimentation rate 22 mm. per hour. The urine showed a specific gravity of 1.030, an acid reaction, and no albumin or sugar. Microscopic examination showed a moderate number of white blood cells, no red blood cells or casts. The blood chemistry was as follows: nonprotein nitrogen 69 mg. per 100 cc., sugar 88 mg. per 100 cc., total serum proteins 5.4 Gm. per 100 cc., albumin 3.2, globulin 2.2, serum chlorides 92 milli-equivalents per liter. The blood Kahn test was negative. A stool specimen was negative for blood but showed numerous hookworm ova. The sputum was white and frothy and showed no acid fast organisms. The venous pressure was recorded as 85 mm. of water. The vital capacity could not be satisfactorily determined. Three blood cultures were sterile.

X-ray examination of the chest showed marked cardiac enlargement both to the right and to the left, and the heart was thought to be of typical mitral configuration. Both lung fields showed marked vascular congestion and edema. An electrocardiogram showed a sinus tachycardia; the PR interval was 0.19 seconds; $ST_{2, 3}$ and $_4$ were depressed.

Course in the hospital: On the night of admission the temperature rose to 103 F. and the pulse to 130. The patient continued to have paroxysms of coughing with marked dyspnea. On the second night the temperature fell to 99-100 F., and she appeared to be better. She was digitalized slowly, given vitamins of the B complex and vitamin A, and codeine and phenobarbital as necessary. She lost about 5 pounds in weight and continued to have marked tachycardia and dyspnea. On the fourth day the temperature rose again to 101 F., and acetyl salicylic acid, 0.6 Gm. every four hours, was started, but had little effect. On the afternoon of the ninth hospital day the patient had a paroxysm of coughing productive of frothy sputum, and the lungs were found to be full of rales. She was given morphine and put in an oxygen tent, and tourniquets were applied to the extremities. The dyspnea improved temporarily, but she gradually became less responsive and died after several hours. Blood cultures never showed any growth.

Discussion

DR. GEORGE T. HARRELL: The initial complaints of increasing shortness of breath and cough pose the question as to whether the primary pathologic process began in the lungs or in the heart. Dypsnea may be the earliest sign in failure of the myocardium of the left ventricle. The increase in dyspnea

when the patient was recumbent would favor myocardial failure, but the relief obtained by turning to either side would not. If fluid were present, relief should have been obtained only by turning toward the affected side. The severity and paroxysmal nature of the cough and the respiratory rate of 50 are against the possibility of cardiac failure. The white, frothy character of the sputum is of no help in differentiating the two conditions. Clubbing of the fingers and toes may have been present as a result of chronic pulmonary disease. The accentuation of the substernal pain caused by assuming the recumbent position and by cough or deep breathing favors a pleural lesion, which might have extended from the parenchyma of the lung.

The physical findings which suggest myocardial failure are the distention of the neck veins, enlargement of the liver, edema of the legs and the eventual development of acute pulmonary edema. The pulse was too rapid for a gallop to be heard. The venous pressure of 85 mm. of saline is just beyond the upper limit of normal. Against the possibility of cardiac failure are the complete absence of rales, until the day of death, and the absence of albumin in the urine.

Although the pulmonary symptoms and signs noted on admission did not fit cardiac failure alone, the terminal picture was one of this condition. The two most common etiologic factors in young patients are congenital heart lesions and rheumatic fever. In favor of the former etiology would be the intensity and position of the murmurs, the accompanying thrill, and the questionable clubbing of the fingers. This last finding should have been accompanied by cyanosis, but the anemia may have obscured this. A patent interventricular septum would account for the rough, loud, systolic apical murmur accompanied by thrill, but would not account for the diastolic murmur. Cyanosis need not be present in cases of patent interventricular septum, since the flow of blood is usually from the left to the right ventricle and oxygenated arterial blood would flow back through the lungs. A patent ductus arteriosus would give both systolic and diastolic components to the murmur, which should have been heard farther to the left of the midsternal line anteriorly. It is possible to hear the murmur of a patent ductus only in the back, where the questionable to and fro murmur was heard. Is it possible that this murmur, which was heard posteriorly equi-distant from the points at which mitral apical and basilar aortic murmurs are usually heard anteriorly, was composed of components of each and hence mimicked a to and fro murmur? The flow of blood through the ductus is from the system of greater pressure toward the system of lesser pressure, and hence from the systemic into the pulmonary circuit. The continuation of flow during diastole leads to peripheral signs of increased pulse pressure, which were present; but other signs such as collapsing pulse, pistol-shot femoral artery sounds, and capillary pulsations in the fingers are not described.

In favor of acute rheumatic fever is the history of nose bleeds, the pulse of 120 and the increased white count and sedimentation rate. The blue spots in the skin may have been due to rheumatic purpura; the presence or absence of platelets in the blood smear, which is not mentioned, would aid in the differentiation from thrombocytopenic purpura. Precordial pain is a common symptom in rheumatic fever, but usually is caused by pericardial inflammation; the type of murmur and the positions in which pain was accentuated or relieved are not typical. That no large pericardial effusion was present is indicated by the loudness of the murmurs and heart sounds, the increased pulse pressure and the absence of change in the murmur. Against acute rheumatic fever is the absence of a history of a preceding infection, unless it could have been in the lungs. The complete absence of joint pains or muscle achings would be somewhat unusual in rheumatic fever of this severity, since this is a disease of mesenchymal tissue wherever it is found. The differential white blood cell count in rheumatic fever usually shows a higher polymorphonuclear leukocytosis. The PR interval of 0.19 seconds, although within normal limits for an adult, may be slightly prolonged for a child of 15 years. The other changes noted in the electrocardiogram are usually due to digitalis, but may occur in pulmonary infarcts, and are additional evidence that the lung changes might be due to emboli. The failure to respond to salicylate therapy would not support a diagnosis of rheumatic fever, although the dosage used was not the massive one now being recommended. Since the physical signs are not typical of congenital

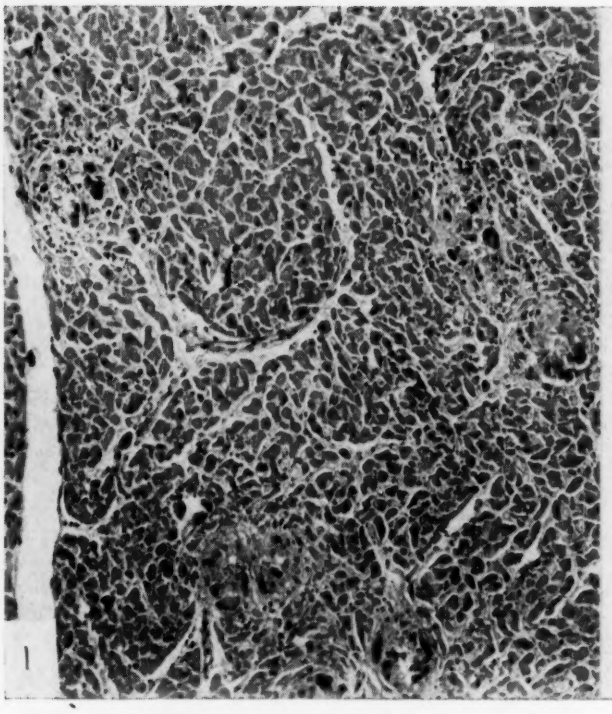

Fig. 1. Aschoff bodies in the myocardium. Seven are seen in this picture.

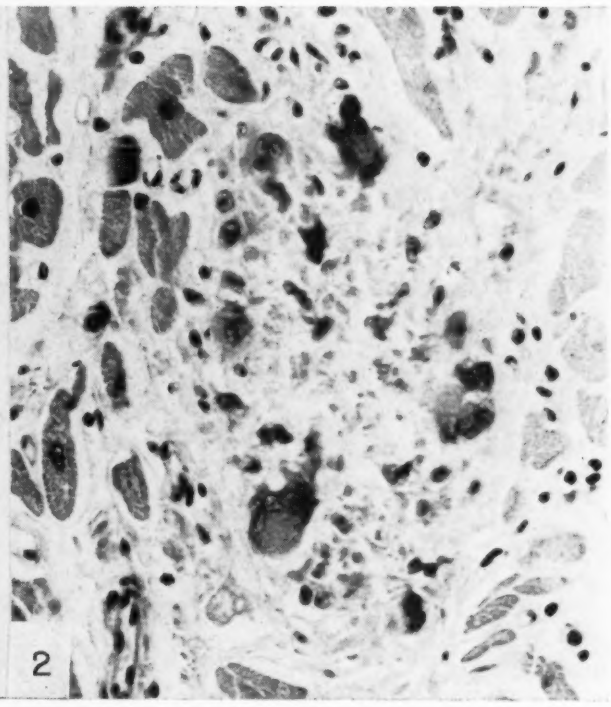

Fig. 2. High power photomicrograph of a typical Aschoff body. Note degenerating myocardial fibers at the right.

heart disease in all respects, is it possible that the patient had had *chronic* rheumatic heart disease of which the present episode was an acute exacerbation? Loud, rough, systolic apical murmurs do occur with old valvular scarring and deformity of the mitral valve, and result in insufficiency which would be exaggerated by dilatation; the x-ray configuration of the heart is described as typical of a mitral lesion. Because of the tachycardia, the presystolic rumble of an accompanying stenosis might not have been heard. The diastolic murmur suggestive of aortic insufficiency is common in rheumatic heart disease, but the fact that both the second aortic and second pulmonic sounds were clearly heard would suggest that the murmur originated outside of either of these basilar valves. Murmurs of aortic insufficiency are sometimes heard at the mitral area, as was first stated by Austin Flint, but they are presystolic in time. The accentuated second pulmonic sound would be expected in mitral disease and would favor the possibility that the chronic pulmonary symptoms resulted from chronic pulmonary hypertension.

The unmistakable evidence of infection, as shown by the fever, leukocytosis, and chilly sensations, is not easily explained by the history and physical findings. Could this have been the result of bacterial endocarditis? This disease always is engrafted on previously damaged valves, which might have been present as a result of congenital malformation or chronic rheumatic fever. Fever, enlargement of the spleen, clubbing of the fingers, blue spots in the extremities, weight loss, anemia, increased white blood cell count and sedimentation rate, rapid progress of the disease, and poor response to therapy all occur in endocarditis. The character of a murmur should change as the vegetation grows, but the patient was under observation too short a period of time for this to be noted. The absence of petechiae or other definite systemic embolic signs, and the presence of marked pulmonary symptoms suggest that the blood flow was sending organisms and emboli to the pulmonary rather than the peripheral circulation. An interventricular septal defect, a patent ductus, or a lesion on the tricuspid or pulmonic valve would fit this picture. Against the presence of an endocarditis are the absence of chills, petechiae, and finger pain, and the three negative blood cultures. Unless cultures are planted by more than one technique, however, it is possible to overlook anaerobic or micro-aerophilic organisms such as Streptococcus faecalis. All of the other findings suggesting infection could be explained by a lesion in the pulmonary rather than the systemic circuit.

Fig. 3. Interstitial pneumonitis.

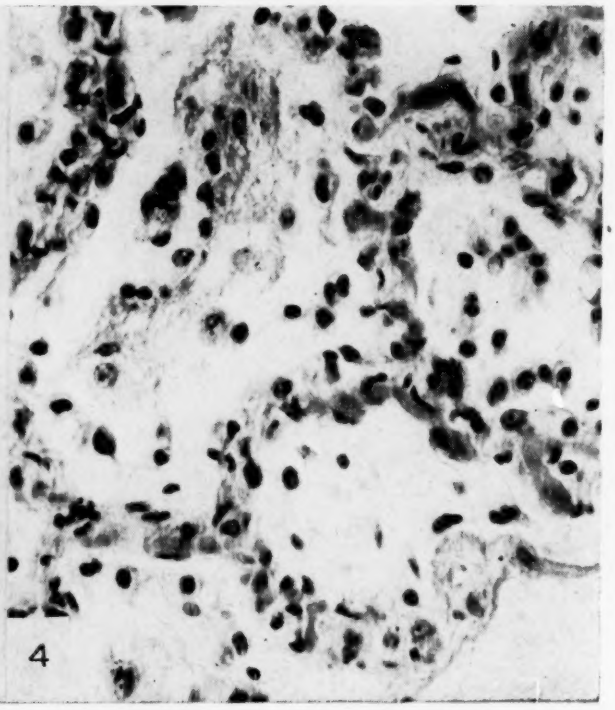

Fig. 4. Interstitial pneumonitis. Note the fibrinoid degeneration of the interalveolar connective tissue.

Minor disturbances such as malnutrition are indicated by the rough skin and the lowered total serum proteins with essentially normal albumin-globulin ratio. The hookworm infestation may have contributed to both the anemia and the hypoproteinemia. The vomiting remains unexplained, unless it was of toxic origin. Fibrosis as a result of septicemia with resulting adrenal insufficiency might be suspected from the asthenia, hypotension, vomiting and pigmentation.

Dr. Harrell's Diagnosis

1. Chronic rheumatic heart disease with mitral insufficiency, cardiac enlargement and dilatation, terminal myocardial insufficiency and pulmonary edema.
2. Congenital heart disease with patent interventricular septum and possible patent ductus arteriosus.
3. Bacterial endocarditis, Streptococcus faecalis, involving the interventricular septum or the patent ductus.
4. Chronic pulmonary fibrosis as a result of chronic pulmonary hypertension.
5. Malnutrition, vitamin A and protein deficiencies.
6. Hookworm infestation.

Anatomical Discussion

DR. ROBERT P. MOREHEAD: Interest in this case centers around the heart and lungs. The heart is enlarged, and together with both layers of the pericardium weighs 800 Gm. The pericardial cavity is completely obliterated by fibrous adhesions and both layers are greatly thickened. Verrucous vegetations are seen on the mitral, aortic and tricuspid valves, and the former two are thickened by fibrous tissue. I have never observed a case of rheumatic heart disease in which Aschoff bodies were as numerous as in this one. You see in this slide (fig. 1 and 2) numerous oval shaped areas of collagenous degeneration with cellular infiltration which are typical of this disease.

The findings in the lungs have interested me greatly. Both organs are covered by fibrinous and fibrous adhesions and are much firmer than normal. Microscopically there is a great increase in the interalveolar connective tissue, which is characterized by fibrinoid degeneration and collagenous deposits (fig. 3 and 4). In certain areas mononuclear cells are present in small numbers and structures are seen which bear a striking resemblance to Aschoff bodies.

I believe that we must think of rheumatic fever as a fibrinoid degeneration of the collagenous tissues of the body. We are all familiar with the fact that it is the connective tissue of the heart and joints which is affected most frequently and most severely.

However, as in this case, other structures are occasionally affected. It seems that this patient developed early and extensive pulmonary disease. Although cardiac failure was present terminally, one cannot attribute the interstitial changes in the lungs to this condition. I feel that this patient presents well marked interstitial rheumatic pneumonitis, as well as pancarditis.

Anatomical Diagnoses

1. Pancarditis, rheumatic.
2. Chronic interstitial pneumonitis, rheumatic.
3. Chronic pleuritis, bilateral, rheumatic.
4. Chronic passive congestion of the viscera.

Closing Discussion

DR. HARRELL: The suspicion of a chronic long standing pulmonary lesion appears to have been confirmed, but it may have been proliferative as a response to infection, rather than fibrotic as a result of circulatory changes. The interstitial nature of the lesion in the lungs explains the absence of rales. The individual lesions were apparently too small to be seen in the apices of the lungs in the x-ray film. The pathologic findings, unfortunately, do not explain the basilar diastolic murmur with clear pulmonic and aortic second sounds, and the degree of mitral dilatation seen in the specimen at the present time does not explain the very clear thrill at the apex which was both felt and heard. The absence of generalized clinical symptoms, in spite of the widespread distribution of the rheumatic lesions in many organs found pathologically, impresses again the fact that rheumatic fever in this latitude does not follow the same sharp clinical picture seen in colder, damper parts of the country.

The role of the general practitioner in the eradication of tuberculosis cannot be overemphasized. Mass programs of case finding in high schools, colleges, industry and racial groups are public health functions. But there are other categories that such drag-nets do not reach. One of these is the older third of the population. They constitute no single group to be rounded up for mass examination. Yet, they contain a higher percentage of infectious cases than any other age. The family doctor alone has direct access to this reservoir of community infection. To drain it effectively and speedily his aid is indispensable. Editorial, Tuberculosis Abstracts, Nov., 1942.

MEDICOLEGAL ABSTRACT

J. F. OWEN, M.D., LL.B.
RALEIGH

ESTATES OF DECEDENTS: *The birth of issue capable of inheriting as a requisite to the inheritance of an estate by the courtesy is satisfied if the child is alive for only a moment of time.*

This suit was instituted for the purpose of recovering possession of certain land, the rents and profits obtained therefrom during the occupancy by the defendant, and damages for trespass in cutting and selling timber from the land. The plaintiffs proceeded upon the theory that they were the owners in fee of the land, through inheritance from the wife of the defendant, who allegedly had died without issue born capable of inheriting. The defendant denied that the plaintiffs had title to the land, and at the trial offered evidence tending to show that during his marriage a child capable of inheriting was born. He therefore contended that he was the owner of a life estate by the courtesy, which could be possible only if in fact a child had been born alive.

It should perhaps be mentioned in this connection that an estate by the courtesy is one to which a surviving husband is entitled, as a widow is entitled to dower rights, but with the additional requisite that a living child must be born to the union.

The husband testified in Superior Court essentially as follows, and his testimony was substantiated by the midwife who was present at the birth of the child in question.

"I was present in the room with my wife at the time of the birth of the child. A midwife was present also. There was no one else there at the time of the birth but us three. The evidences of life were a little muscular tremble when the air first struck the newborn child, a little groan or noise and some little blubber from the nose and mouth, and pulsation of the heart. I observed a little muscular tremble, blubber of the nostrils or mouth, pulsations of the heart, and a little noise, but not exactly a cry. I could not state exactly how long after the birth the child lived. The pulsations of the heart continued for some minutes. After the birth of the child it was given by me to the midwife. The child was born on the morn-

ing of the fifteenth, I believe, and the mother died on the seventeenth."

In Superior Court there was found to be sufficient evidence that the child was born alive, and it was decided that the defendant was entitled to a life estate in the property in litigation. The plaintiffs appealed to the Supreme Court.

When this case came on to be considered by the Appellate Court many questions of law were decided, but the only one of interest to the medical profession was concerning the signs of life acceptable as evidence to prove the existence of life. According to the court, the requisite birth of issue capable of inheriting is satisfied if a child is alive for only a moment of time. The word "alive" means that the child shall have an independent life of its own for some period after birth. While respiration affords such evidence of life, proof of respiration from actual observation is not necessary to establish it, but other indications of life, such as the beating of the heart and pulsations of the arteries, may be satisfactory evidence of a child's independent existence.

Of course, if cases of this kind could be anticipated, we would have the additional benefit of medical opinion as to the existence of life. Unfortunately, however, such suits are generally instituted a long time after birth, and at a time when it would be impossible to perform the necessary pathological examinations.

No error was found by the Supreme Court, and the findings of the Superior Court were affirmed. (Supreme Court of North Carolina, Fall Term, 1916. 90 S. E. 247.)

TUBERCULOSIS ABSTRACTS

A Review for Physicians

ISSUED MONTHLY BY THE NATIONAL TUBERCULOSIS ASSOCIATION

VOL. XVII MAY, 1944 No. 5

THE emphasis on early diagnosis of pulmonary tuberculosis would seem to be wasted if effective treatment is unnecessarily postponed. Discriminating selection of cases for collapse therapy, skillful choosing of the appropriate method and prompt employment of the elected procedure are indicated in the interest of all concerned.

INTRAPLEURAL PNEUMONOLYSIS

It seems generally agreed that at least half the cases of pulmonary tuberculosis require some form of collapse treatment, either reversible or irreversible. Thoracoplasty is the best surgical example of the latter, while the oldest technique devised—pneumothorax—is a good representative of temporary, reversible collapse of the lung.

The chest specialist is the one to select either method after he has evaluated the patient's condition and the stage of his tuberculosis. The mistaken belief that "time heals everything" must give way to acknowledgment that this disease demands immediate consideration invariably and active methods of treatment whenever indicated. In this race against time, presence of a cavity calls for measures to obliterate it before delay invites a hemorrhage or spread results in a hopeless condition.

Pneumothorax remains the first choice, but is successful in only about half the cases in which it is initially tried. Lack of success may be attributed to adherence of the two pleural surfaces so that collapse of the cavity is impossible or incomplete. Delay in the institution of pneumothorax may allow the parenchymal inflammation to progress and involve the pleurae until adhesions form and so defeat later attempts at what should have been a simple collapse procedure.

Formerly, a risky method attempted to stretch or break such adhesions by forcing air into the pleural cavity under positive pressures. Serious complications developed if the adhesion, breaking off near the lung, tore the latter so that a tuberculous or mixed infection empyema resulted. Serious hemorrhage might follow rupture of a sizable vessel incorporated in the adhesion. Precious

time was often wasted while the hoped-for stretching of the adhesion was awaited. Meanwhile the still unaffected cavity might supply bacilli to cause other cavities elsewhere.

Intrapleural pneumonolysis was designed to transform, where feasible, a poor pneumothorax result into a satisfactory effective collapse. Under local procaine infiltration anesthesia, a special cannula is introduced between the ribs into the pleural space, transmitting a visual instrument not unlike a cystoscope. Through this the operator views the interior and by means of a cautery inserted through a second cannula in another interspace severs the adhesions under direct vision.

Adhesions vary in size and shape and may be multiple. They range from "fiddle-string" to short, thick and cylindrical, or may resemble accordian pleated sheets that radiate in all directions and run all the way from paper-thinness up to bands one or several centimeters in diameter. In using the cautery it is necessary to remember that thicker adhesions may contain lung tissue or large blood vessels and that they may be attached firmly to the aorta, subclavian artery or vital mediastinal structures. Great skill is required to avoid disasters similar to those already listed above as chargeable to stretching and rupture of adhesions.

A skilled operator will sever an adhesion as near its parietal extremity as possible, thus protecting the lung while exercising due caution as regards the intercostal structures as well, especially if actual dissection in the latter area proves necessary. In competent hands, backed by adequate experience and judgment when and when not to cut, the operation is a minimal one as regards the patient's discomfort. In less experienced hands, however, it can present dangers exceeding those of almost any other major intrathoracic surgical procedure.

When a pneumothorax is started and adhesions can be seen to interfere with collapse, provided the space is large enough for the surgeon to manipulate his instruments, there is no reason for delay. Besides the well-known hazards of an open cavity, the longer one waits the thicker grows the pleura covering the bands and the greater the difficulty of cutting them.

Very large adhesions may have to be severed partially at one sitting and finished in stages after waiting periods of three or four weeks have intervened. Adhesions too widespread to submit to this method call for abandonment of the unsuccessful pneumothorax and the selection at once of a collapse procedure other than pneumonolysis.

Summary

1. Remember the time factor and begin active pneumothorax treatment immediately upon an individual who has a cavity. Don't wait to see what happens to the case with prolonged bed rest. Too often the realization will be accompanied by disappointment and chagrin.

2. In about half the cases a pneumothorax will be complicated by adhesions.

3. Don't attempt to stretch adhesions by means of a positive pressure pneumothorax.

4. Make an attempt to sever them by intrapleural pneumonolysis—again remembering the importance of time—as soon as possible.

5. In the hands of an expert, the unfavorable consequences of the operation are insignificant and the complications rare, but when performed by one with little experience, the dangers are very real.

6. If it is impossible to improve the collapse by pneumonolysis, abandon the pneumothorax and perform a thoracoplasty.

Intrapleural Pneumonolysis, Lt. Comdr. James E. Dailey, M. C., U. S. N. R., Diseases of the Chest, Nov.-Dec., 1943. (Reviewed and passed by The Bureau of Medicine and Surgery, U. S. Navy.)

While we look for the virtual conquest of tuberculosis within the measurable future, we cannot hope for the annihilation of the tubercle bacillus. Unless Nature takes an unexpected whim to do away with it beforehand, this acid-fast rod may be present at the obsequies of the last man on earth. Therefore, it is well for tuberculosis workers to prepare for permanent duty during war and peace, in good times and bad, lest the microscopic vegetable seize the unsuspecting moment and the fertile spot to seed itself anew. J. Burns Amberson, M.D.

Pulmonary tuberculosis is principally a disease of those between the ages of 15 and 45. This age group corresponds with that of the bulk of our industrial workers. This would, therefore, be particularly adapted to control by thorough industrial physical examinations followed by a sound and consistent policy of placement and medical supervision. —Wayne L. Rutter, M.D. and J. W. Dugger, M.D., Industrial Medicine, Jan. 1944.

BULLETIN BOARD

News Notes From the State Board of Health

Through January and February of 1944 there were 5,721 deaths in North Carolina, as compared with 4,963 during the corresponding period of 1943—an increase of 758 in two months. Of the total, 777 were babies under a year old, reflecting an increase of 62 over the first two months of 1943. Maternal deaths numbered 47, just five less than a year ago.

Moreover, the year began with a decrease in births, which in 1943 reached an all-time numerical high of more than 95,000. Since the war began, there has been a sustained upward trend. Whether this trend will stop remains to be seen. It is too early to tell. Undoubtedly, one of the causes of the present drop is the absence of so many married men in the armed forces. Through February of this year there were only 14,430 births in North Carolina, as compared with 15,342 during the corresponding period last year, a decrease of 912 in just two months. While figures on illegitimate births have not been compiled for the war period, yet it is known that the wave of juvenile delinquency certainly has **not decreased** the number of unmarried mothers, either in North Carolina or in the country as a whole. That is a sociological and a moral problem which cannot be governed by statutory law or public health. However, one has but to read recent reports made by Mr. J. Edgar Hoover, chief of the Federal Bureau of Investigation, to become shocked at existing conditions, in which sex plays a very important part.

There have been, so far this year, more deaths from both influenza and the pneumonias than occurred during the corresponding period of 1943—319 influenza deaths, to be exact, which is 229 more than occurred in January and February of last year, and 489 pneumonia deaths, or 110 more than last year, despite the marvelous effects of sulfa drugs in the treatment of pneumococcic infection.

We need not necessarily be **alarmed** as 1944 gets under way, as the discouraging figures that have been compiled may constitute simply a "Cassino front," so to speak—a temporary reverse. But we do need to keep our eyes on all danger signals, certainly at a critical time like this.

It is perfectly obvious that with the induction of all able bodied men into the armed forces, except those who are considered vitally necessary, the remaining population's health percentage is lower; that more work remains for public health, for practitioners of curative medicine and for overtaxed civilian nurses and hospitals.

* * * *

In North Carolina, the State Laboratory of Hygiene was authorized by the General Assembly of 1907 for the purpose, primarily, of making examinations of public water supplies. In December of that year, the late Dr. Clarence A. Shore became director of the laboratory and guided its destinies with an intelligent and unselfish loyalty for more than a quarter of a century.

The State Laboratory of Hygiene is primarily a service institution, the chief duty of which is to aid in promoting public health in North Carolina. Its activities are limited almost entirely to those procedures intended to aid in the control of infectious diseases in man.

These services are of four main types: (1) Examination of specimens, (2) production of biologics, (3) the making of special investigations, and (4) administration.

The laboratory prepares and distributes among the people of North Carolina, for their continuing protection: Typhoid fever vaccine, whooping cough vaccine, diphtheria antitoxin, diphtheria toxoid, Schick test outfits, rabies vaccine, and smallpox vaccine.

Each of these is prepared by a special group within the Division of Laboratories.

Special investigations are conducted from time to time as the need arises. The work involved in these investigations usually is carried on by the groups making examination of specimens or the production of biologics. Only occasionally, up to the present time, have we had attached to our staff special investigation workers; but it is hoped that, in the near future, we may have whole time workers to make investigations worthy of the name of research.

Our plant consists of the Central Laboratory Building on Caswell Square, 214 West Jones Street, which was dedicated on February 21, 1940, as the Clarence A. Shore Memorial Building, and the Laboratory Farm, located on U. S. Highway Nos. 1, 64 and 70, six miles west of Raleigh.

Forsyth County Health Department Receives Award

Award of the 1943 National Health Honor Roll to 53 city and county units was announced last month by Eric A. Johnston, president of the United States Chamber of Commerce, which with the American Public Health Association, sponsors this nation-wide merit award program for community health advancement. Among the 53 public health units receiving this award was the Forsyth County Health Department.

News Notes From the North Carolina Tuberculosis Association

Dr. Julian S. Miller, the 1943 State Christmas Seal Sale Chairman, announces that North Carolina exceeded its 1943 goal of $150,000 by $48,110.13. The total Seal Sale for 1943 was $198,110.13. This is an increase of $74,698.42 over 1942 — or 60 per cent. The state per capita was 5.8 as compared to 3.4 for 1942.

* * * *

The North Carolina School-Health Coordinating Service announces that four child health conferences will be held again this summer. These conferences will be held at Woman's College, Greensboro, June 8-July 19; University of North Carolina, Chapel Hill, July 21 - August 29; Bennett College, Greensboro, June 13 - July 25; and North Carolina College for Negroes, Durham, June 6 - July 18.

A few fellowships are available to white and colored which will cover one-half of the actual expenses. Anyone interested in obtaining a fellowship should consult his county or city superintendent of schools and county or city health officer, since the appointments will be made by the joint action of these two officials. Further information on these conferences and fellowships may be obtained from the office of the North Carolina Tuberculosis Association in Raleigh.

* * * *

"Mass Radiography," an English motion picture, is now available from your state tuberculosis office in the 16 mm. size. This film portrays in a very interesting manner the development of mass x-ray services in England.

The state advisory committee on rehabilitation of the tuberculous met at the Carolina Hotel in Raleigh on April 13. There were thirty persons present for this meeting representing the various agencies, official and voluntary, interested in this problem. Governor J. Melville Broughton opened the morning session. Other speakers were: Dr. P. P. McCain, H. E. Springer, Mrs. Anne T. Freeman, Murray G. Hill, R. Eugene Brown, Mrs. Elizabeth S. Stainbrook and Walter Wenkert. The afternoon session was devoted to a general discussion of the problems stated in the morning session. Dr. M. D. Bonner, chairman of the rehabilitation committee of the state association, appointed the following committee to continue the study of this problem and to make recommendations to the Executive Committee of the North Carolina Tuberculosis Association: Frank W. Webster, Chairman; Dr. P. P. McCain; H. E. Springer; Mrs. Elizabeth S. Stainbrook; Dr. Derwin Cooper; and Miss Ruth Harris.

* * * *

The latest county to organize a county tuberculosis association is Gaston. The Seal Sale chairmen enthusiastically cooperated in effecting that organization, of which Mr. James W. Atkins is president; Mrs. Gordon Johnstone, vice president; Mrs. C. W. Pierce, secretary; and Mrs. W. L. Balthis, treasurer. The committees are being formed preparatory to doing effective work as a county unit.

SUMMER SESSION

"THE PUBLIC HEALTH NURSE IN A TUBERCULOSIS CONTROL PROGRAM"

University of North Carolina
Chapel Hill

Tuberculosis nursing, the subject selected for the 1944 summer session, is based on a survey of health departments made last fall by the Department of Public Health Nursing of the School of Public Health.

With the assistance of the U. S. Public Health Service and the North Carolina State Board of Health the Department of Public Health Nursing is offering a 15 days' concentrated course, June 12 to June 28 inclusive. Registration will be June 11. This is a 52 hour course and carries four and one-half quarter hours of credit.

Since tuberculosis is a pressing problem of the South, nurses and other public health workers are cognizant of their need for scientific knowledge and the newer methods of tuberculosis control.

Mrs. Louise Lincoln, Tuberculosis Nursing Consultant of the National Organization for Public Health Nursing, who has a rich background of experience in this field, will be the guest instructor.

Scholarships are available through State health departments for those employed by official agencies. Additional scholarships from Bolton Act funds and tuberculosis associations are available to nurses with non-official agencies.

For further information write to:

Ruth W. Hay
Professor of Public Health Nursing
Department of Public Health Nursing
School of Public Health
University of North Carolina
Chapel Hill, North Carolina

NEWS NOTES FROM THE BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

A meeting of the Bowman Gray Medical Society was held on May 1 in the amphitheatre of the North Carolina Baptist Hospital. The speaker was Dr. Louis H. Clerf, Professor of Broncho-Esophagology at Jefferson Medical School. The subject of his talk was "Motility and Abnormalities of the Larynx".

FIFTH DISTRICT MEDICAL SOCIETY

The Fifth District Medical Society met at the North Carolina Sanatorium on April 20. The following program was presented at the afternoon session:

Pulmonary Embolism.....Dr. A. A. James, Sanford
The Work of The Women's Field Army of the American Society for the Control of Cancer—Mrs. George E. Marshall, State Commander, Mount Airy.
Granulosa Cell Tumor—Report of a Case—Dr. C. R. Monroe, Pinehurst.
New Methods in the Treatment of Gastro-Intestinal Tract Obstructions—Dr. Keith S. Grimson, Duke University, Durham.
Coronary Disease—Dr. Hugh A. McAllister, Lumberton.

Following the scientific program the society was entertained at dinner by Dr. P. P. McCain and his staff at Sanatorium. Dr. Roscoe D. McMillan, Secretary of the State Medical Society, addressed the society after dinner on "The Present Problems Facing the Medical Profession of the State".

The society passed a motion that it go on record as opposing the Wagner-Murray-Dingell Bill.

EDGECOMBE-NASH COUNTIES MEDICAL SOCIETY

Dr. E. C. Hamblen, Professor of Endocrinology at Duke University, addressed the Edgecombe-Nash Counties Medical Society at its regular meeting on April 12. His talk was entitled "Some Observations on Endocrine Therapy and Sterility".

A special meeting of the society was held on April 26 for a discussion of Governor Broughton's proposals for increased medical care. Senator Clark and Representatives Pearsall and Fountain were invited to attend this meeting.

FORSYTH COUNTY MEDICAL SOCIETY

Dr. Orlen Johnson, from A. M. A. headquarters in Chicago, addressed the Forsyth County Medical Society at a dinner meeting held on April 19. The subject of his talk was "The Importance of Industrial Medicine in General Practice."

ROBESON COUNTY MEDICAL SOCIETY

Dr. W. T. Rainey of Fayetteville spoke to the Robeson County Medical Society at its April meeting on "The Management of Congestive Heart Failure". At this meeting a new plan of discussion was inaugurated, several members of the society being notified of the speaker's subject beforehand and asked to be prepared to discuss the paper.

The Cabinet of the Robeson County Medical Society, composed of this year's officers, the past president, and the president-elect, has recently begun publication of a Bulletin containing announcements and news items of interest to the members of the society.

Mental Hygiene Society of Virginia

The seventh annual meeting of the Mental Hygiene Society of Virginia was held on April 28 at Roanoke. The theme of the program was "Security and Rehabilitation in War Time".

American Hospital Association

The third War Conference and the 46th annual convention of the American Hospital Association will be staged October 2 to 6 inclusive in Cleveland, Ohio, city of its founding in 1899.

Convention headquarters will be at the Statler hotel, Cleveland, with exhibits arranged in the city's auditorium where general sessions of the convention will be conducted. Allied organizations meeting simultaneously will assemble at the Hotel Cleveland.

Baruch Committee on Physical Medicine

After a scientific exploration of the possibilities of the subject, with special reference to its value in the rehabilitation of the wounded and ill men discharged from the Armies—casualties of the war—Bernard M. Baruch last month gave the sum of $1,100,000 to be used for the teaching of and research in physical medicine. An Administrative Board, under the Chairmanship of Dr. Ray Lyman Wilbur, Chancellor of Stanford University, has been established to inaugurate the program.

AUXILIARY

The biography of an eminent North Carolina doctor is presented each year by the State Auxiliary to the Southern Medical Lending Library. This year we are privileged to present a memoir of the late Dr. William Allan.

Mrs. John B. Ray, Leaksville
Research Chairman

* * * *

WILLIAM ALLAN, M.D.

Dr. William Allan began his medical career in 1908 when he came to Charlotte, North Carolina, to practice medicine. Fresh from stimulating internships at the Baltimore City Hospital, Bay View, Maryland, the United States Public Health Service at Stapleton, Staten Island, the Nursery and Childs, New York, and the Boston Floating Hospital, he brought a capacity for hard work and an abounding enthusiasm that never failed him throughout the coming years.

He was born August 14, 1881, and spent his first eight years at McDonough School, Maryland, of which his father, Colonel William Allan, was founder and Headmaster. On the death of his father, his mother took her family of small children to live in Lexington, Virginia. There William Allan had an unusually happy and unique boyhood, exploring the hills of that beautiful valley in a lone ranger sort of existence, and yet even in those early years winning the friendship of those who came to know him. He graduated from the Academy there under Major Frank Smith, a teacher of rare gifts, of whom he spoke as a formative force in his life. He received his A.B. degree from Washington and Lee University in 1902, and was ever to hold in loyal and affectionate thought his Alma Mater. He counted those college days—his football, boat crew, the Phi Gamma Delta fraternity, and the friendships then formed—among his treasured possessions.

On leaving college, he spent a summer working with a survey squad of engineers on the Louisville and Nashville railroad near Evansville, Indiana. Many and entertaining were the stories gleaned from that experience, and staunch were the friendships sealed. The following autumn he entered the old College of Physicians and Surgeons in Baltimore, and started, under straitened circumstances, on the steady stretch of hard work that is the lot of every serious medical student. All along the way he generously paid tribute to the aid and influence of many of the teachers and students with whom he worked.

William Allan came to Charlotte when it was a smaller town than it is now, and was just beginning its phenomenal growth. He grew with it, putting his splendid energy behind its every effort for betterment and progress. It was at this stage that he became deeply interested, with others, in the formation of the much needed Associated Charities. The one occasion when he entered the pulpit of one of the large churches of the town to speak in its interest was perhaps not an enjoyable time for him (not being a speaker), but it was a proud moment for his mother to see him in the pulpit. He early saw the need of a medical reference library, and when the doctors of Charlotte began to pool their medical books and journals, he was enthusiastic about the future of a medical library for the Mecklenburg County Medical Society.

Those early days saw hard work, with fluctuating and uncertain success; his office light burned into the small hours, and in his absorption in his study he often forgot all else. Right there was the vision of the goal that he was never to lose sight of, looking into the far horizons of medicine. His early research was largely in the field of tropical diseases. A number of patients with amebic dysentery and sprue were being sent back to this country, and many came under his care. At the time he was teaching bacteriology in the Medical School in Charlotte, and coaching football under "Coach" Floyd Simmons. Between them they were helping prepare the future doctors of North Carolina.

William Allan served in France for the duration of World War I, as Captain and Major with the Brenizer Unit, which was attached to the Harvard Unit and stationed at Bordeaux. The division of Internal Medicine was under Dr. Richard Cabot of Boston, with whom Dr. Allan worked in close companionship. Among his treasured notes is one from Dr. Cabot speaking of him as "one of the best diagnosticians I have ever known." It was into the field of Internal Medicine that he entered on his return from the war, bringing with him the devotion of Unit "O" and a host of "Yankee" friends, whose valued friendship he was to retain to the end of his life. Many think he lived up to Dr. Cabot's estimate of his gifts as a diagnostician, and he was widely consulted by the doctors of North and South Carolina.

Even before the war, he had an interest in eugenical matters. At first, however, it consisted mainly in quite casual allusions in family conversation and an occasional hereditarily handicapped patient that baffled him and puzzled him. After the war, in the slack times that came with the change in his field of endeavor, he pursued this interest with his usual energy and enthusiasm. It soon became his hobby for every spare moment between consultations, and

his family and friends were constantly on the alert for items of genetic interest. He called it "Treasure Hunting," and it filled many a glorious afternoon of exploring the countryside in the search of hereditary traits in far flung clans. The hobby consumed more and more time, until he felt that he had something that could no longer be simply played with, but should be made available for the service of humanity. This idea grew and was greatly advanced by a grant in aid from the Carnegie Corporation of New York, which gave him the efficient assistance of a Field Worker, of a consulting geneticist, and later of a medical assistant and geneticist. The continued support of the Carnegie Corporation enabled Dr. Allan to make several extensive surveys of hereditary diseases which wreck childhood. Statewide studies of patients with muscular dystrophy and certain other crippling diseases were undertaken. A similar survey of 800 blind persons in fifteen western North Carolina counties was also completed. These surveys were designed to obtain data on the incidence and genetic mechanisms of those diseases, data essential for the formulation of a practical program for reducing the number of grossly defective children in our population. Dr. Allan organized a Department of Medical Genetics at the Bowman Gray School of Medicine of Wake Forest College, and this department is now continuing the work under the direction of Dr. Nash Herndon, Dr. Allan's assistant.

The honors that came to Dr. Allan were never taken by him as personal, but to be shared by those with whom he worked. He never sought publicity or desired an audience for himself, but only for what he called the spreading of the gospel of genetics for a eugenically improved race. There was no superiority in his thought of himself, no superciliousness towards others less endowed.

The last years of his life he worked with the most unbelievable courage under tremendous handicaps. The indomitableness of his spirit and the serenity of his great mind led him to say with genuine sincerity to his family, "I must put this work on its feet if it kills me." In no phase of his life did he spare himself. Lenient to others, he was to himself severe. Tolerant of even grave faults in others that in himself he would have given no lodgement, he reserved contempt only for the cheat, the untruthful and the disloyal. It was this passion for truth and loyalty that was his guiding star in his research for the betterment of the race, and the courage of his character that drew men to him. In all his busy life, he always found time for wide and varied reading. He had carried over from boyhood a deep pleasure in being read to, and it was the delight of his family to read aloud to him. All who know him remember his unfailing fund of quiet humor and his kindly wit, and will recall the slow smile that overspread his face in responsiveness, and the twinkling humor in his deep-set blue eyes. Upon many of the younger men of the profession "Dr. Bill" has left the imprint of his association. He extended to them his kindness, encouragement, and friendship. He inspired them to hold to the highest standards of their profession and their manhood by simply doing just that himself.

Dr. Allan served as president of both the Mecklenburg County Medical Society and the Medical Society of the State of North Carolina. He was a member of the American Medical Association, the Association of American Physicians, the National Board of Medical Examiners, the Eugenics Research Association, and Phi Beta Kappa (Washington and Lee, 1932); and in 1941 was honored with the degree of Doctor of Science by Washington and Lee.

In 1911 he married Louisa Garnett Purcell of Richmond, Virginia. They had five children: Elizabeth R. Preston, Anna Brooke, William (died 1922), John Purcell, and William Preston.

At the time of his death from pneumonia in Winston-Salem on April 24, 1943, he was Professor of Medical Genetics at the Bowman Gray School of Medicine in that city.

L.G.P.A.

BOOK REVIEWS

Female Endocrinology. By Jacob Hoffman, A.B., M.D., Demonstrator in Gynecology, Jefferson Medical College; Pathologist in Gynecology, Jefferson Hospital; Formerly Research Fellow in Endocrinology and Director of the Endocrine Clinic, Gynecological Department, Jefferson Hospital, Philadelphia. 788 pages with 180 illustrations, including some in colors. Price, $10.00. Philadelphia and London: W. B. Saunders Company, 1944.

The wide application of endocrine products in gynecological practice has evoked the appearance of a number of books dealing with female endocrinology. Most of these unfortunately, in an attempt to be concise and thus appeal to the busy practitioner, have contained little more than the compendia issued by the pharmaceutical firms marketing endocrine products. There is no "royal road" to endocrinology, and the practitioner must realize that in order to apply intelligently the recent knowledge gained in this field, it will not suffice merely to follow directions regarding "what to use for what," but he must understand the fundamental biological considerations which are the basis for this form of therapy. In this respect, the book by Dr. Hoffman is an exception to most texts on endocrine gynecology. He enters fully into the theoretical basis and experimental data upon which the practical applications are founded. He has prepared a very thorough and complete study of the subject, which the publishers in turn have produced in a beautiful format. To the general practitioner who wishes seriously to study the subject of female endocrinology, this book can be enthusiastically recommended.

The Neuromuscular Maturation of the Human Infant. By Myrtle B. McGraw, Associate Director, the Normal Child Development Study, Department of Pediatrics, Columbia Presbyterian Medical Center. 133 pages. Price, $2.00. New York: Columbia University Press, 1943.

This brief book is recommended to individuals interested in the growth and development of the human infant. The book is divided into six chapters: I. Structural Foundations of Behavior; II. Neonatal Behavior; III. Development of Neuromotor Activities; IV. Some Aspects of Early Sensory Development; V. Individual Development; and VI. Maturation and Learning.

There is a detailed account of the progressive motor development of the infant, the primary aim of the author being "to depict in a general way those characteristics which reflect participation of the cerebral cortex in each function."

The author suggests in conclusion a few "educational hints" that should be apparent from our present knowledge of infant development.

Office Endocrinology. By Robert B. Greenblatt, B.A., M.D., C.M., Professor of Experimental Medicine, University of Georgia School of Medicine; Director, Sex Endocrine Clinic, University Hospital, Augusta, Georgia, with a foreword by G. Lombard Kelly, M.D., Dean, University of Georgia School of Medicine. Second edition. 243 pages, 48 figures. Price, $4.00. Springfield, Illinois: Charles C. Thomas, 1944.

No field of endocrine medicine has received so wide and varied an application as has gynecology. The scientific advances in this field have made possible an understanding of the basic mechanisms involved in the reproductive process, while the availability of the sex hormones and the vigor with which they have been pressed upon the general practitioner has led to their promiscuous and often ill-advised use for every ailment or symptom attributed (at times erroneously) to abnormality of the reproductive function. That the present monograph has been found attractive to the general practitioner is evidenced by this appearance of a second edition. The book deals briefly, but in a clear and succinct manner, with all the conditions encountered in office gynecologic practice.

It is well and interestingly written and the illustrations and text are printed with the usual excellence of "Thomas" publications. It is inevitable in a subject of such recent development that many opinions should be expressed which are open to question. For example, the reviewer doubts the advisability of the empirical use of dessicated thyroid, as suggested in Chapter 34, or of the use of estrogens for hirsutism (Chapter 26). However, the book is essentially sound, and should be of value to the general practitioner. The title "Office Endocrine Gynecology" would have been a more appropriate title, since most of the book deals with this aspect of the more general subject.

Quarterly Review of Medicine. Published by Quarterly Review of Medicine, 314 Randolph Place N.E., Washington (2), D. C. $9.00 per year.

The number of available medical journals and the mass of literature which has to be covered in order to keep up with the current advances in this field have prompted the appearance in recent years of numerous abstract journals and digests. The **Quarterly Review of Medicine** consists of selected abstracts covering the field of internal medicine. As is true of all abstracts, it is often impossible to convey the spirit and substance of a complete article. Nevertheless, these journals do offer a means whereby the busy practitioner may at least obtain a superficial acquaintance with current medical opinion.

Quarterly Review of Surgery. Published by Quarterly Review of Surgery, 314 Randolph Place, N.E., Washington (2), D. C. $9.00 per year.

This review is edited by Dr. H. N. Harkins and an editorial board of twenty-one outstanding surgeons. Like its companion publication, **The Quarterly Review of Medicine**, it includes brief abstracts and an occasional illustration taken from the surgical literature. It should appeal to the general practitioner who is unable to devote a sufficient time to the perusal of one or more of the original journals from which these abstracts are obtained.

Office Gynecology. By Dr. J. P. Greenhill, Professor of Obstetrics and Gynecology, Loyola University Medical School, Chicago, Illinois; Professor of Gynecology, Cook County Graduate School of Medicine; Attending Gynecologist, Cook County Hospital; Editor of the **Year Book of Obstetrics and Gynecology.** Third edition, revised and reprinted. 424 pages, with 116 illustrations. Price, $3.00. Chicago: The Year Book Publishers, Inc., 1943.

This small volume contains a clear and concise picture of Dr. Greenhill's conception of almost every field of office gynecological practice. In general, it is based upon sound gynecological judgment, with procedures of value to the general practitioner carefully outlined. Much of the space is devoted to procedures which will be of interest only to the gynecological specialist, with full chapters devoted to sterility, hysterosalpingography, pelvic diathermy, and the use of pneumoperitoneum and roentgenography in pelvic diagnosis.

There are satisfactory chapters on contraception, both by mechanical devices and by the Ogino-Knauf rhythm theory, and on pre-marital advice. The chapter on dyspareunia is rather inadequate. The endocrine section is fairly sound, but suggestions for therapy are too vague to be of great assistance to a general practitioner.

Detailed information upon the office treatment of cervical disease with the actual cautery and electrocoagulation is given, but the danger of postoperative cicatricial stenosis following the use of these procedures is not stressed sufficiently.

In general, this book may be said to contain many valuable suggestions for the office treatment of gynecological lesions.

The Jews and Medicine. Essays by Harry Friedenwald, M.D., D.H.L. (Hon.), D.Sc. (Hon.), Professor Emeritus of Ophthalmology, University of Maryland. In two volumes. 816 pages. Price of each volume, $3.75. Baltimore: The Johns Hopkins Press, 1944.

Dr. Friedenwald—or Dr. Harry, as he is affectionately known to his intimates to differentiate him from his brothers and son—has throughout life been an eminent bibliophile and medical historian. His personal library has been consulted by many interested in medieval medicine, and his historical studies in this field are well known. In the present two volumes have been collected his essays dealing with the Jews, who played such an important role in bridging the gap and keeping alive medical science during the so-called dark ages. Mention of only a few of the titles should suffice to give an idea of the scope of this work: "The Physician's Aphorisms: A Medieval Hebrew Satire", "Apologetic Works of Jewish Physicians", "Use of the Hebrew Language in Medical Literature", "Moses Maimonides the Physician", "Amatus Lusitanus", "Jewish Physicians in Italy: Their Relation to the Papal and Italian States".

These volumes are well written in a clear, lucid and interesting style. They are well annotated with references to the original literature and are a scholarly contribution to the history of medicine. All workers in this field are indebted to the author and to the Johns Hokpins Press, which has made these volumes available in so fine a format.

Rorschach's Test. I. Basic Processes. By Samuel J. Beck. Price, $3.50. New York: Grune & Stratton, 1944.

The author of this book is one of the pioneers in the use of the Rorschach test in this country. He has had wide and varied experience along all lines of this important personality test. This volume is a valuable scoring guide, rather than a textbook, for the modification of Rorschach's original work as suggested by the author. Of greatest value are the extensive scoring samples which may serve as a helpful reference in the basic instruction of the method. Each of the sixteen chapters has an appendix with a careful and varied selection of scoring records for the symbol under discussion. It seems the author prefers that approach to giving clear-cut definitions of his symbols. This necessitates a certain familiarity with the technique before one is able to derive all the possible benefit. Since this volume is intended for basic instruction, the author's repeated taking issue with other workers' approach may add a confusing element. The scoring of a number of factors is based on statistics. This has the advantage of giving an objective approach, but does not always allow an individual evaluation of each response, which is one of the great merits of the original method. The classification of the "organization level" is an outstanding example of this. The process of organization should not only depend on the "quantitative" ability to combine several elements into one unit, but should be based on a qualitative evaluation. The approach as outlined by Beck would increase the rigidity of the procedure and influence definitely the flexibility of the interpretation. In this reviewer's opinion, the suggested administration lends itself to "quantity ambition" and is apt to increase the subject's tension by emphasizing the test situation. The theoretical foundation of the test, which plays a stimulating and outstanding part in Rorschach's monograph, is not discussed. However, it is hoped that the author will take up those essential problems in the second volume (**A Variety of Clinical Pictures**) which is scheduled for publication within several months.

Shipping Address For Your Art Exhibit

Artist-physicians desiring to exhibit their works at the June A.M.A. Meeting should ship their works not later than May 20th to the following address:

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Further information may be obtained from Francis H. Redewill, M.D., Secretary, American Physicians Art Association, Flood Bldg., San Francisco, Calif.

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